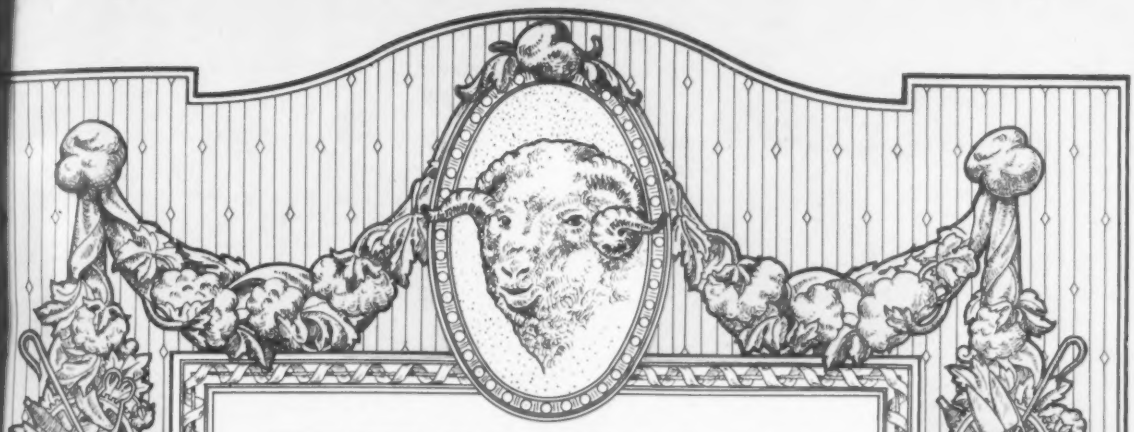

TEXTILE WORLD RECORD

April 1915

SPECIAL FEATURES

South American Trade, Weights and Measures
A Northern Mill Man in a Southern Mill
Moisture Regain for Worsted Tops
Cotton Knit Goods in England
Novelties in Cotton Fabrics
The Dyestuff Situation

LORD & NAGLE CO., Publishers
BOSTON, MASS.

Vol. XLIX No. 1

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PERIODICAL

The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

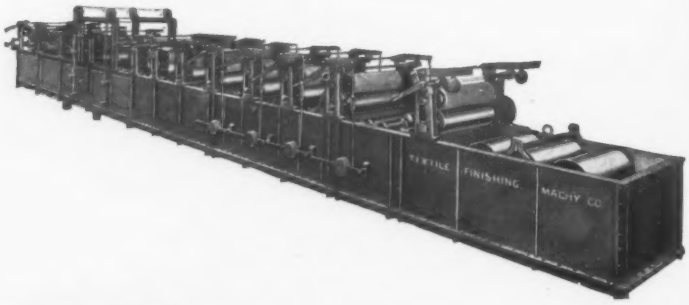
BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

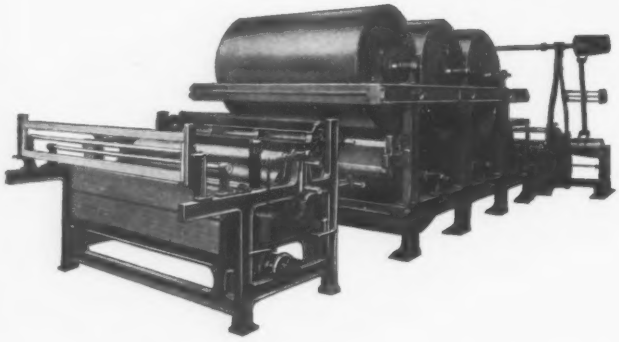
FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



Warp Mercerizing Machine



Carpet Yarn Sizing, Drying and Beaming Machine

SOLE BUILDERS IN UNITED STATES OF
SPENCER'S IMPROVED SKEIN MERCERIZING MACHINE

Mercerizing Machinery for Cotton Goods and Warps

Bleaching, Drying, Dyeing

and

Finishing Machinery

For Textile Fabrics

Bleach House
Machinery of All Kinds

Drying Machines
(Copper and Tinned Steel Cylinders)

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for elastic finish with Automatic Clamps

Return Tentering Machines
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Machinery of All Kinds

We are also sole Licensees and Makers in the United States for Daniel Foxwell & Sons, Manchester, England, of the

KAY & FOXWELL'S Patent Pneumatic Guider and Feeder

Simpson Patent Cloth Winder Avoids Stopping to Change Rolls Giving Increased Production

H. W. Butterworth & Sons Co.

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THE BEST

NORTHROP
Trade Mark Registered
LOOM
BOBBINS
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SHUTTLES

ARE MADE BY

Northrop Loom Manufacturers

Look for our name on your Bobbins and Shuttles

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Northrop Looms

Trade Mark Registered

Increase product per loom

Increase wages per weaver

Reduce cost of weaving per yard

Pay for themselves in five years or less

Can You Afford to Do without them?

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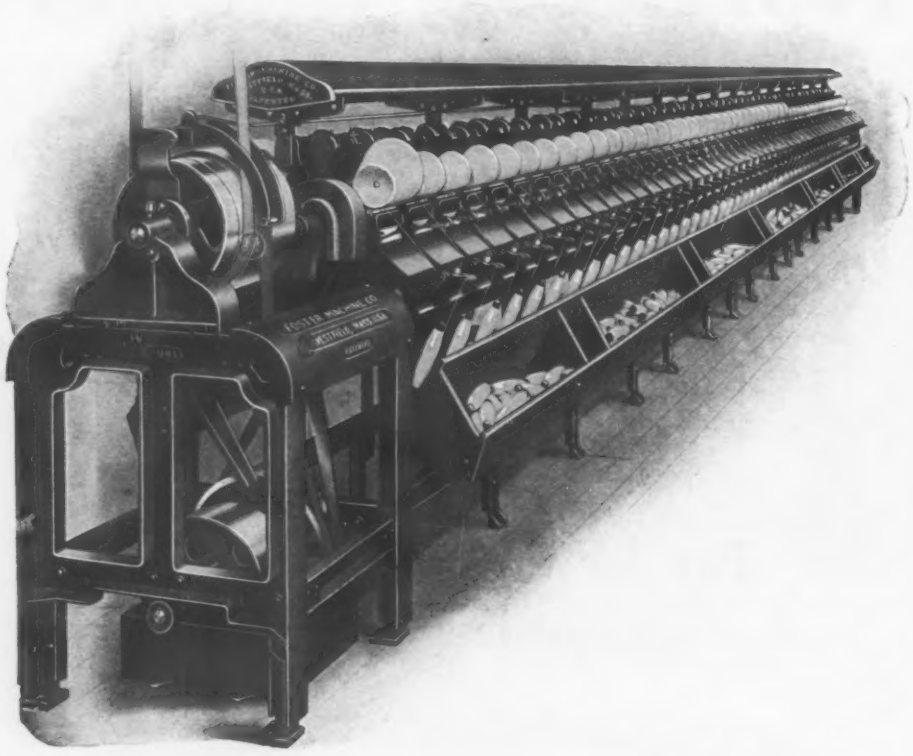
Hopedale Mass.

J. D. CLOUDMAN, Southern Agent, Atlanta, Ga.

The Foster Model 30



The Model 30 Cone Winder has every good principle of former Models incorporated in it. In addition, the new Model is more flexible of adjustment and may be set to produce finished cones of much greater taper than former Models, although paper cones of the same or lesser pitch are used.

Foster Machine Company

Westfield, Massachusetts

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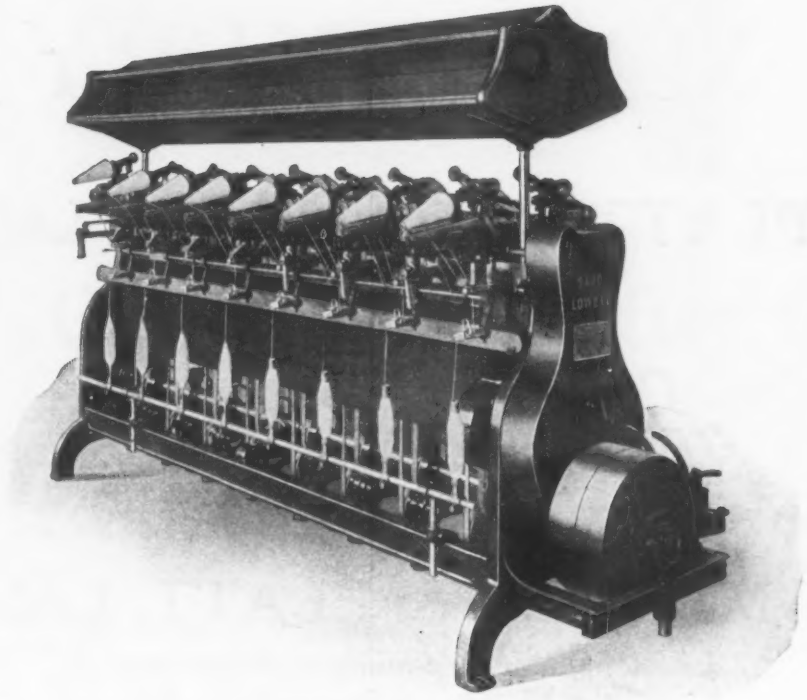
Saco-Lowell Shops

TEXTILE MACHINERY



Camless Cone Winder

Effects saving in cost of repairs and operating expenses.
Increases capacity of operative,—decreases cost of winding per pound.
Duplicate work from every spindle positive.
Compact construction and large product per spindle insures appreciable saving in floor space and lessens first cost of installation.

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Sole Agents in the United States and Canada for

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By far the Largest Makers in the World of

Cotton, Woolen and Worsted Machinery

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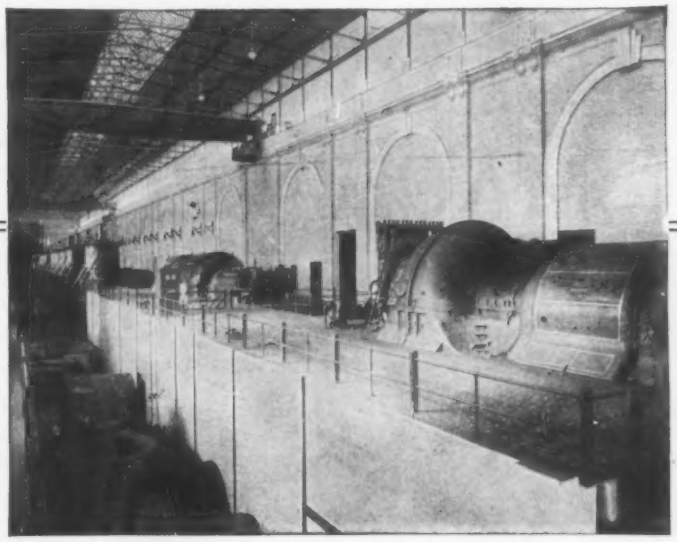
Equipment of Complete Works for

BLEACHING, CALICO PRINTING, DYEING AND FINISHING

Patent Mechanical FILTERS for Town Supplies and all Industrial Purposes

Wool Washing and Drying Machines, Napping Machines, Sykes' Card Clothing for Cotton, Critchley's Card Clothing for Woolen and Worsted, Wilson Bros'. Bobbins, etc., Harding's Pins, Fallers and Circles, Dronsfield's Grinding Machinery and Emery Fillet; Double Loop Bands, Scroll Banding etc.; Condenser and Gill Box Aprons, etc.



Another successful

Carrier Humidifier Installation

The above illustration shows the Commonwealth Edison Company's, Fisk St. Station, Chicago which is equipped with Carrier Type G Generator Humidifier

We have just published a new booklet—"Generator Cooling and Cleaning" which we will gladly send to anyone interested

Ask for Booklet 252-21

Carrier Air Conditioning Co.

Of America

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Arthur R. Sharp, Treas.; Thomas G. Cox, Agent

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Works at Taunton, Mass.

Investigate the record of Rice's in the biggest textile mills

Before you purchase a white gloss paint for the ceilings and walls of your plant—investigate the experience of others, both with Rice's and its imitations.

We have a great deal of testimony to submit, showing that while the imitations of Rice's may look as well when **first** put on, they soon turn distinctly yellow, crack and peel, and soon require repainting if a white interior is desired. The reason is that they are all **varnish** paints.

Rice's is an OIL paint. It is not a cold water paint but can be applied over old cold water paint. It is made by a special process, discovered and owned exclusively by us. The tremendous advantages of this process enable us to give the following guarantee:

We guarantee that if Rice's does not remain white longer than any other gloss paint, applied at the same time and under the same conditions, **we will give, free, enough Rice's to repaint the job with one coat.** We also guarantee that, properly applied, Rice's will not flake nor scale. You cannot lose under this guarantee.

Write for testimonials from textile mills, and booklet, "The Yellow Peril"

Sold direct from factory
Sold direct from our factory in barrels containing sufficient paint to cover 20,000 square feet—one coat.

RICE'S GLOSS MILL-WHITE

U. S. GUTTA PERCHA PAINT CO.
20 Dudley Street, Providence, R. I.

On concrete surfaces
On inside concrete, Rice's Granolith makes the best possible primer for a second coat of Rice's Gloss Mill-White—giving a tile-like enamel finish at no more expense than lead and oil paint.
Rice's Granolith

Parks' Piping Parables

Oh piping—how many are the sins
that are committed in thy name!

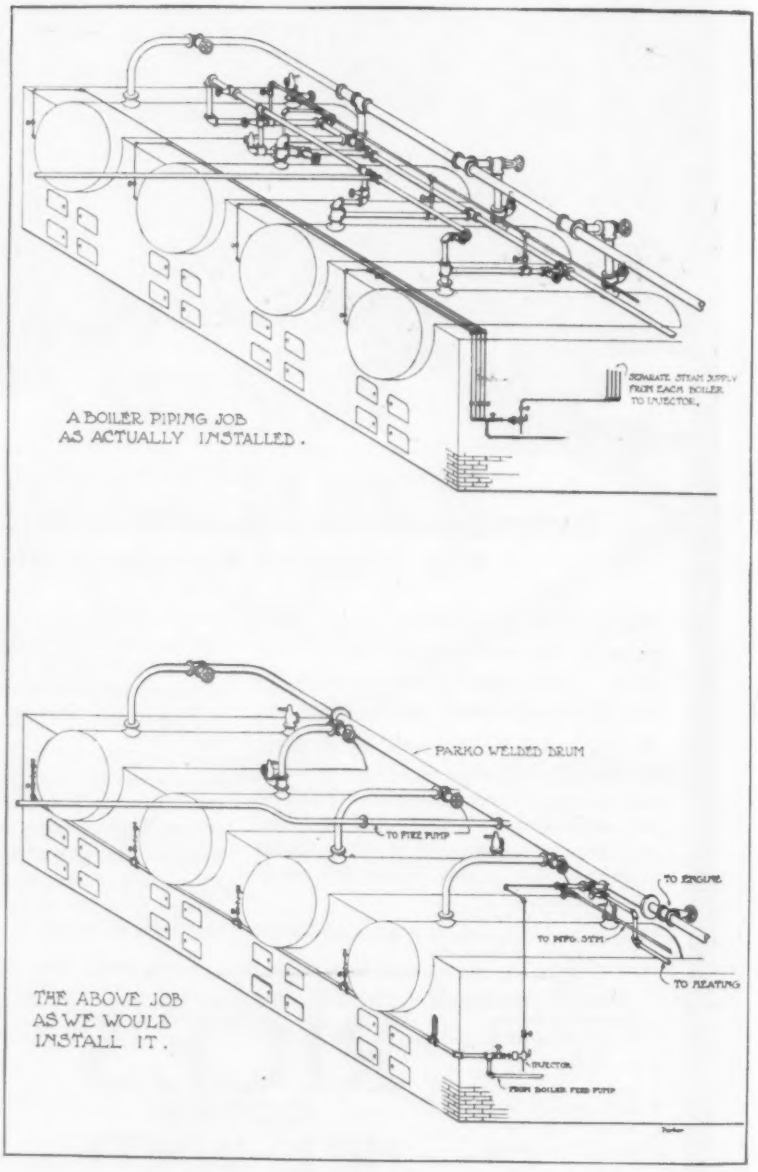
We show a sketch of some boiler piping in a mill that one of our engineers recently visited.

The two jobs are entirely identical. That is, the one is in operation, and the other, if put in place of it, would do all that the first would accomplish. In the first there is needless duplication, more chances for leaks, more to watch, more to remember.

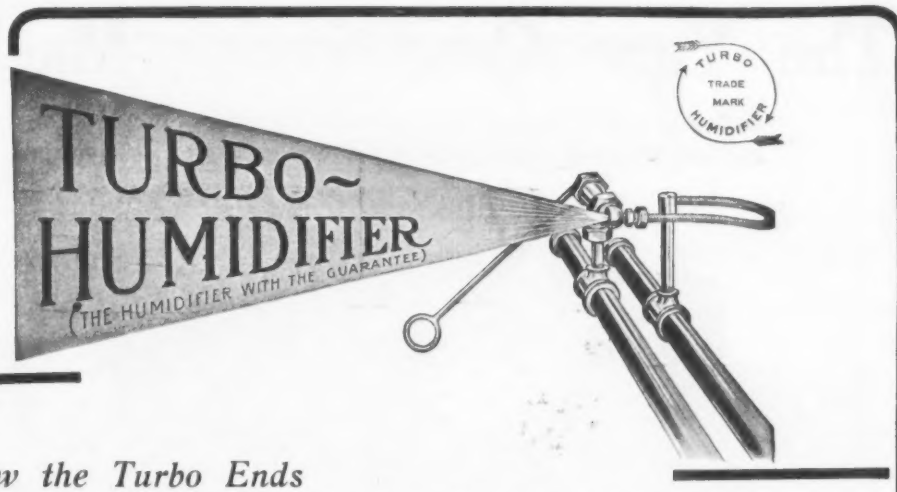
The second eliminates duplication, minimizes chances for leaks—and does away with remembering, for it follows a definite plan which may be consulted at any time.

Now is there any argument as to which is the cheaper?

Also you can do better now in point of prices, service and things in general, than you can later when you are rushed on foreign war orders.



The G. M. Parks Company, Fitchburg, Massachusetts



How the Turbo Ends

HUMIDIFIER TROUBLES

In the beginning — when we had to tell who and what we were; when the ancestry of the Turbo had to be explained, and explained — and explained — the skeptical were as always, doubtful.

They were doubtful if the Turbo wouldn't make more trouble than it saved.

While they confessed, usually, that the Turbo was a beautiful piece of workmanship, they wagged their heads and raised objections.

One thing in particular.

They pointed to the small orifices and said—"these here will wear in time and if they don't wear, they will clog up — and if they do clog up there's the devil to pay."

Patience.

Seven years of actual use has proven that the skeptical were not right — and if they were, are less justified in their attitude now.

Seven years — yes, eight or more if you include the early models — have proven that the workmanship and material that is put into the Turbo is lasting and durable.

With 25,000 Turbos in use, not one has been removed on account of workmanship.

Still the skeptics set us thinking and later designs — with reduction in air pressure have improved the Turbo in efficiency, in attendance cost, in liability to clog, etc., etc.

Let me say one thing about the Turbo when it does become inoperative from any cause — as it occasionally will. That was taken into consideration in the original design.

If a single Turbo goes on a strike, that's all there is to it. It doesn't overflow. It doesn't cause damage. The water supplying the Turbo is *not* under pressure. So if the air fails, the water simply flows to its level and quits — and if the water fails, the heads simply blow air.

It has no drain pipes to plug up. It uses the water only once. It is as nearly fool proof as a fine piece of mechanism can be.

Humidifier troubles in the Turbo system resolve themselves into something a good deal less than trouble — and our system of inspection tends by co-operation on our part, even after you have paid for your job — to give you maximum results without trouble.

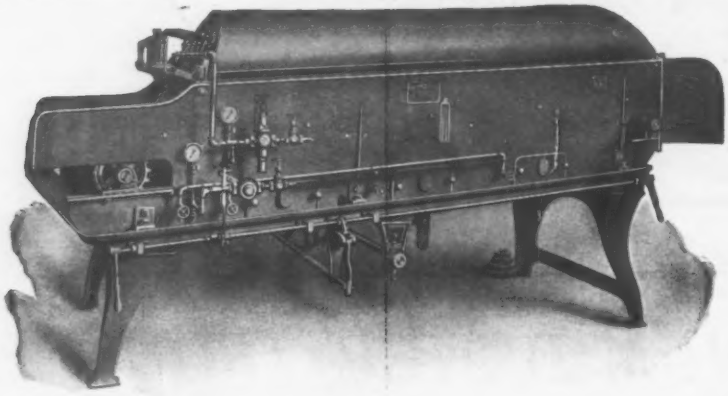
The G. M. Parks Company

Fitchburg, Mass.

Southern Office, 200 Commercial Bank Building, Charlotte, N. C. **J. S. COTHRAN, Mgr.**

The Yarn Conditioning Machine

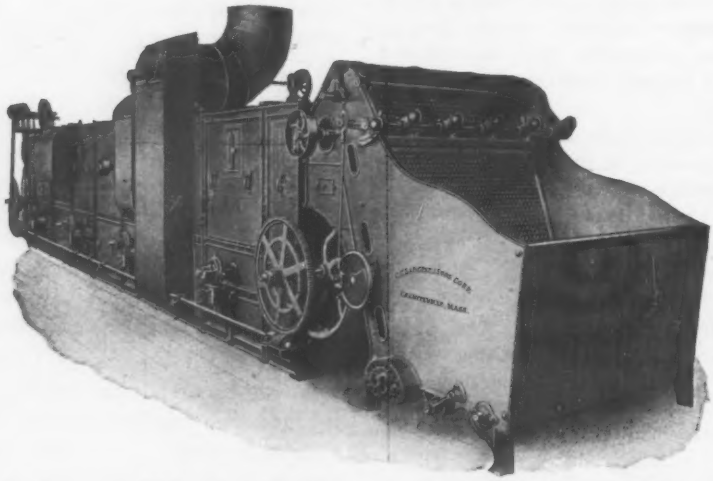
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

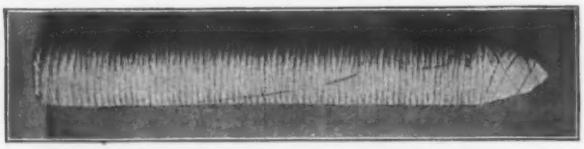
Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



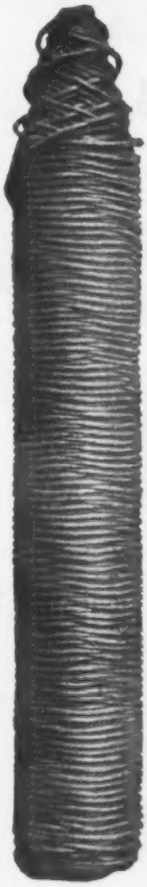
Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

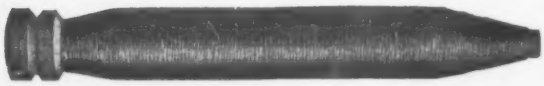


No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.



No. 1 No. 4 No. 3

OSWALD LEVER CO., Inc.

13th and Cumberland Sts., Philadelphia, Pa.

Builders of Textile Machinery

WINDERS ESPECIALLY

The Hunter

NO. 10
FULLING
MILL

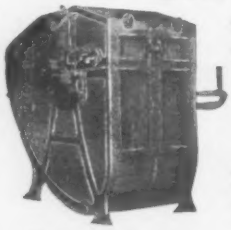
DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES



BELT DRIVE

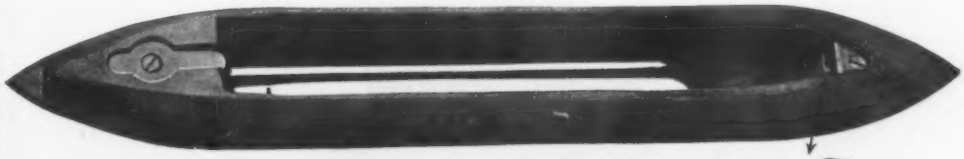
ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*

This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor "*balloon*"—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons

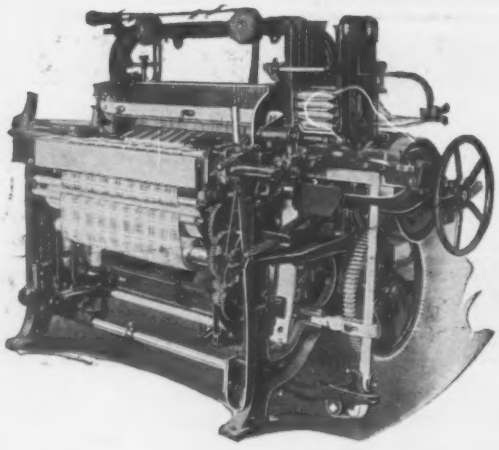
For All Textile Purposes

American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

13th St. and Boulevard, Long Island City

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

ECONOMY AND SAFETY

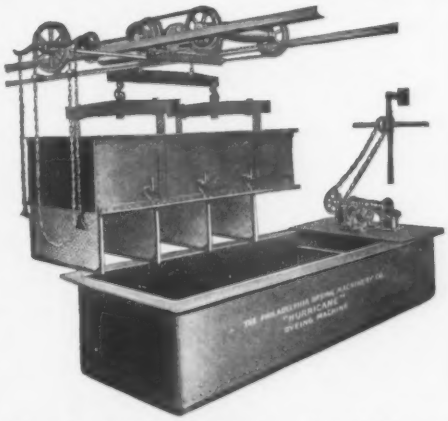
YOU GET BOTH WITH

"Hurricane" Machinery

FOR

HOSIERY
SKEIN
YARN
SLUBBING
etc.

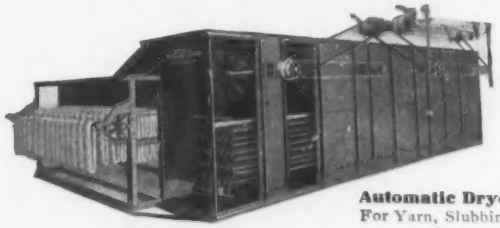
The best and mosteconomical Dyeing Machines



BETTER DYEING at LESS EXPENSE

Give us an opportunity to prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types



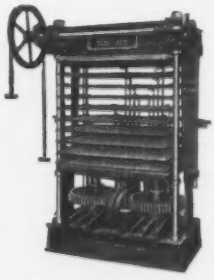
Automatic Dryer
For Yarn, Slubbing, etc.

Complete Equipments for

Dyeing
Scouring
Bleaching
Carbonizing

FIRE-PROOF DRYERS

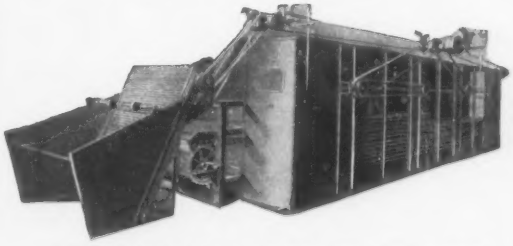
STEEL CONSTRUCTION
INSULATED WITH ASBESTOS



Power-Screw and Hydraulic
PRESSES

Fans

Motor and Belt Driven



AUTOMATIC STOCK DRYER
(With Sectional-Continuous Conveyor)
For Cotton, Wool, Hair, Rags, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

A size which never misses fire because it is chemically correct, simple in application and the most effective product of its kind known.

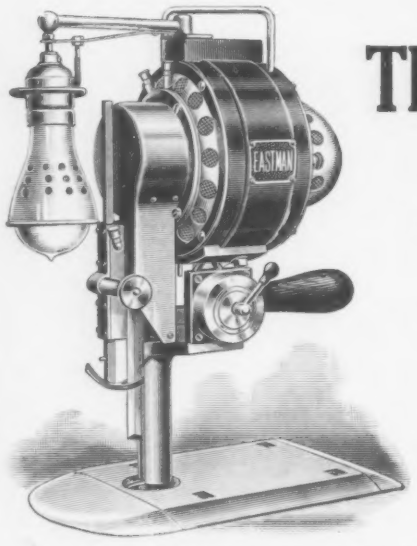
SIZOL
TRADE-MARK

Produces Maximum Results

THE SEYDEL MFG. Co.

86 Forrest Street Jersey City, New Jersey

Makers of SOAPS For Textile Mills



The Eastman Cutter

is reliable, it will work day in day out for years reducing your cutting costs and at practically no expense for up keep.

Free trial for all styles

Straight Knives Round Knives For Direct or Alternating Current

EASTMAN MACHINE COMPANY, BUFFALO, N. Y.

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BALTIMORE, 1019 E. Baltimore St.
CHICAGO, 815 W. Van Buren St.
DETROIT, 97 Wayne St.
BOSTON, 564 Washington St.
PHILADELPHIA, 110 N. 8ixth St.
SAN FRANCISCO, 682 Mission St.

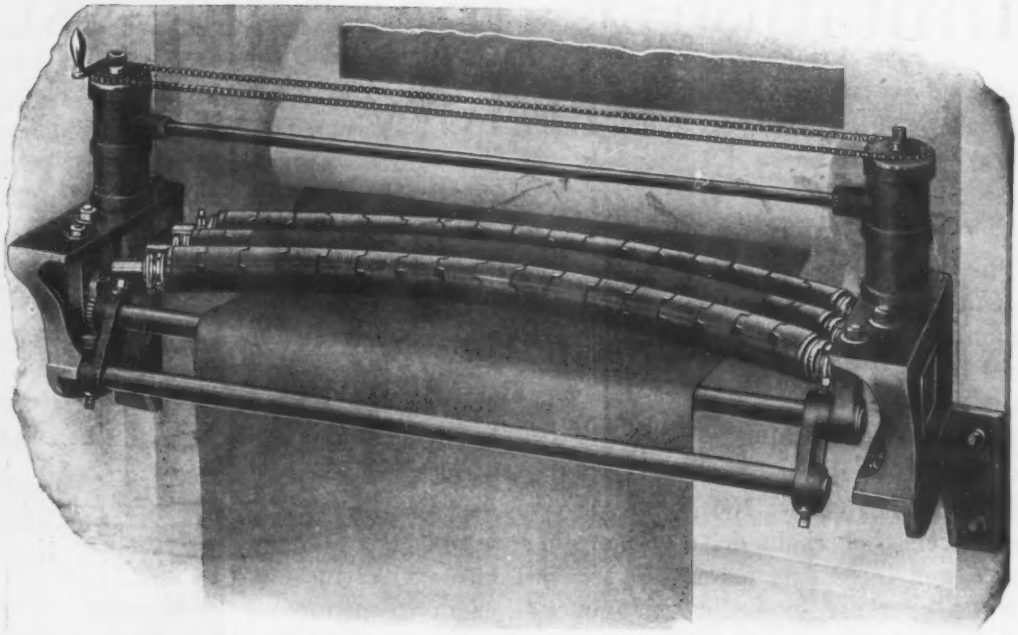
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander



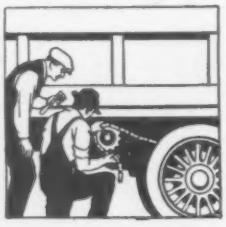
Expander attached to Calender showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, and by others still pending, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

The Worm That Turned *or* Imitation is the Sincerest Flattery

CHAPTER ONE



The first experimental Pierce-Arrow motor truck was sent out for road tests in the spring of 1906. Four years of constant test and experiment convinced the Pierce-Arrow engineers that chain drive was unsuitable and inefficient for motor trucks. None of these experimental models, therefore, was ever offered for sale.

CHAPTER TWO

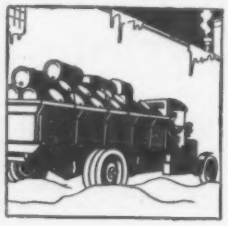
The Pierce-Arrow engineers then put a worm-gear truck in competition with their experimental chain-driven models. The result was so overwhelmingly in favor of the worm gear that this construction was adopted as standard for Pierce-Arrow motor trucks, and the experimental chain-driven models were scrapped.

CHAPTER THREE

The first Pierce-Arrow motor truck was sold in June, 1911, and this original introduction of the worm-gear drive in America made a sensation in the motor truck field. The construction was attacked on all sides by rival manufacturers and denounced as impracticable and inefficient.

CHAPTER FOUR

Pierce-Arrow worm-gear motor trucks soon began to make good in all kinds of service and under the most exacting conditions. The worm-gear drive was proved to be silent, efficient and economical. In 1912 rival manufacturers began to buy Pierce-Arrow trucks and study the worm-gear constructions.



CHAPTER FIVE

The first hastily constructed imitations of Pierce-Arrow worm-gear drive appeared on the market in 1913, and in 1914 a number of leading manufacturers adopted the worm gear for their entire line of trucks. Service records of Pierce-Arrow trucks had shown by this time that there was no perceptible wear in the worm gear after running over 100,000 miles. More and more repeat orders were received as a result of the favorable showing made by these pioneer worm-gear trucks.

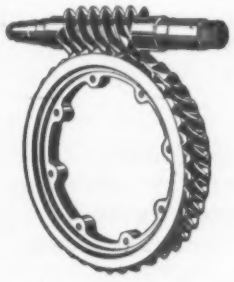
CHAPTER SIX

The trend now became increasingly strong toward worm-gear drive. A general review of the motor truck shows of 1915 indicated that out of 213 accredited makers of gasolene commercial vehicles 25% were already using worm gear while many more were preparing to adopt it next year. Nearly 2,000 Pierce-Arrow worm-gear trucks in successful operation throughout the country now bear witness to the correctness of Pierce-Arrow design and constructions.

(*To be continued in 1916*)

Pioneers in Worm-Gear Drive

Prospective purchasers will find in this little sketch of recent motor truck history about as strong an argument as we can offer in favor of the Pierce-Arrow truck. If recent developments have convinced you that the worm gear is the most efficient and economical drive for motor trucks, it will surely be wise to purchase a truck which has long since passed the experimental stage and now embodies the results of four and one-half years actual working experience in many different kinds of service. Such a motor truck is the Pierce-Arrow—built by the pioneers in worm-gear drive in this country. We shall be glad to send to anyone interested a catalogue of Motor Trucks showing numerous body-types for 2-ton and 5-ton chassis.



The Worm-Gear

Pierce-Arrow Motor Car Co.

BUFFALO, N. Y.

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

FACTS

In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
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C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

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PATENT WATER-DRIVEN

HYDRO-EXTRACTOR

Underdriven Baskets

24 in. Diameter to 48 in.

Suspended Baskets

30 in. Diameter to 84 in.

Retain the benefit of self-balancing with entire absence of belts and gearing. No working parts requiring lubrication except spindle, which only requires a little grease once or twice a year. Can be placed anywhere regardless of power or moisture.

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Starch

SIZING IS ONE OF THE MOST IMPORTANT OPERATIONS IN THE MANUFACTURE OF COTTON GOODS. GOOD WEAVING DEPENDS ON GOOD SIZING. It is therefore very important for a mill to use the kind of starch for sizing which will produce the best results on the particular class of goods being manufactured.

For years we have been making a scientific study of the requirements of textile industry and as the result of our investigations, coupled with practical work in the mills, we now manufacture special starches adapted to every requirement of sizing warps and finishing cotton goods.

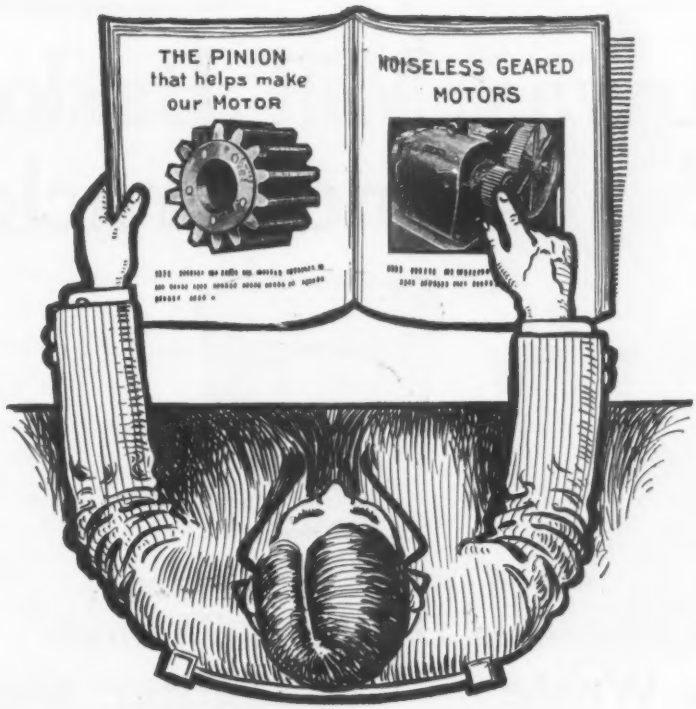
We are prepared to study the requirements of your mill and supply you with starch which will produce the best results on the kind of goods you are making, and also will produce these results economically, giving you the best value for the money invested.

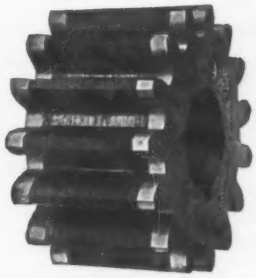
We have experienced scientific men to investigate your problems. Let us show you how to improve your sizing process and obtain results.

Corn Products Refining Company

17 Battery Place, New York, N. Y.

Starch





Look for and insist upon a New Process Noiseless Pinion when you buy a high-speed geared machine—then you need *not* worry about noise afterwards.

They lengthen machine life and help to improve the product of the driven machine.

Ask for our booklet "Noiseless Gear Driving."

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

N.P.R.H. **NEW PROCESS GEAR CORPORATION** N.P.R.H.

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101

LANE

Canvas Mill Baskets Boxes and Trucks

FIG. 22.

Round Taper Style with Renewable Hardwood Shoes.
The Ideal Waste Basket. Made also without wooden shoes.

Increase Dividends Through

Less Waste **Lighter Weight**

Longer Life

Lower Ultimate Cost

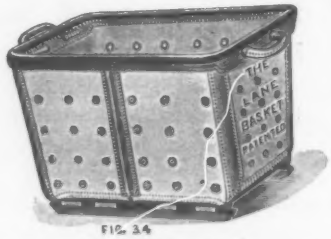

FIG. 34

Oblong Taper Style.
A Steaming Basket with Great Durability and Quick Steaming Qualities.
Made in shape or size to fit any steam box.

A STYLE FOR EVERY USE

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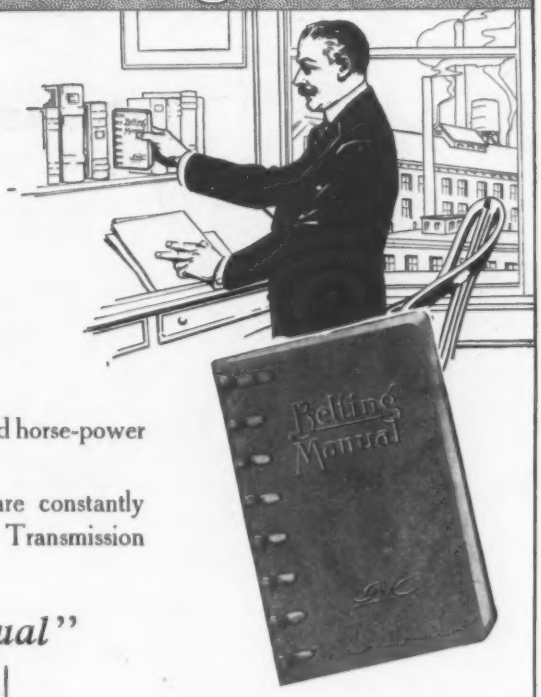
POUGHKEEPSIE, N. Y.

"That little Book is too good to lose!



Get a copy of the "Belting Manual" and be sure to preserve it. Its the "how" book on belting transmission, it tells:

—how to select belts.

—how to install, lace and care for belts.

—how to make belts endless on the pulleys.

—how to find the width, speed and horse-power of belts.

—scores of other "hows" which are constantly coming up in your Power Transmission problems.

The "Belting Manual"

with its 96 pages is the most thorough and concise book of its kind, giving all the needed information in the shortest and simplest fashion. It gets right down to bed-rock and is unusually complete with authentic mechanical rules and tables.

We want every belting user to have a copy of the "Belting Manual." If you haven't one send the coupon or use your letterhead, and the book will be sent by return mail.

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Oak Leather Tanners and Belt Makers
Worcester, Mass., U. S. A.

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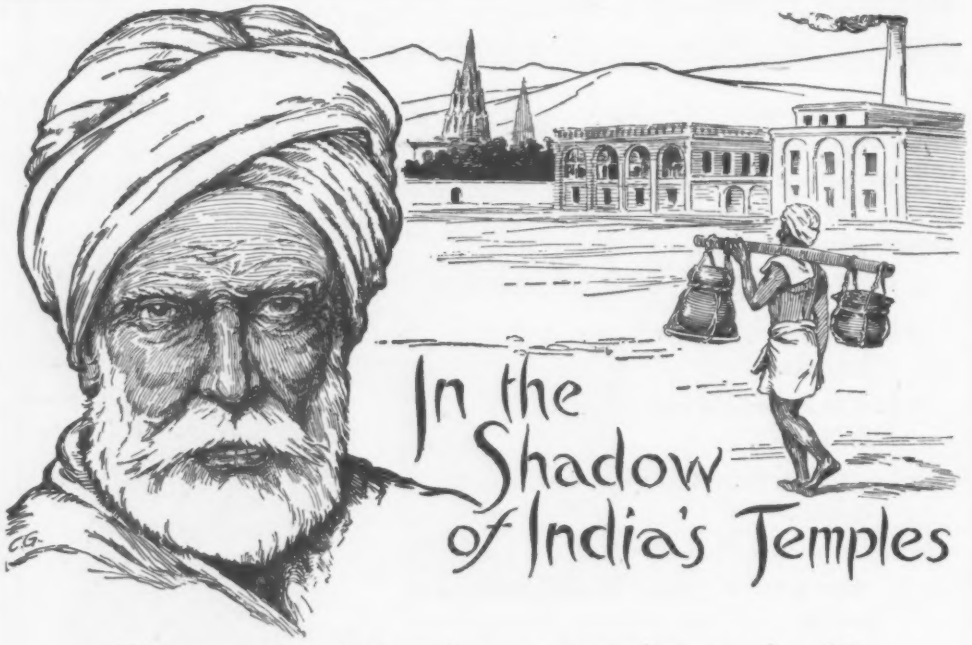

Where great industries are growing up in this age-old civilization

there is a demand for DUXBAK because of the seasonable weather conditions. Twice each year the monsoon, loaded with dampness, creeps over the land and no ordinary leather belting can withstand the moisture that penetrates every porous substance. For years the manufacturers of India depended on cumbersome laced and riveted belting — until DUXBAK came in. Now they speed up their machines without fear of slipping belts, cracked pulleys or the dozen and more difficulties they formerly had to endure.

There is nothing remarkable about this success in India, for, everyday, DUXBAK overcomes industrial conditions that are much more severe right here in the United States. DUXBAK was made first for Americans, and the reason for its success abroad lies in the remarkable variety of industries it is used in in our own country.

Whatever transmission you use or however severe the conditions of dampness, acid fumes, alkalis, oils or dust may be we would welcome the opportunity of showing you how economical DUXBAK Belts will be in your plant.

Write us to instruct the Schieren Agency nearest you to send a trial belt for 60 days' use. There is nothing like actual proof to show the time saving and the greater power drive of a DUXBAK Belt.

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PETERSBURG, Va.: 20 Shore Street
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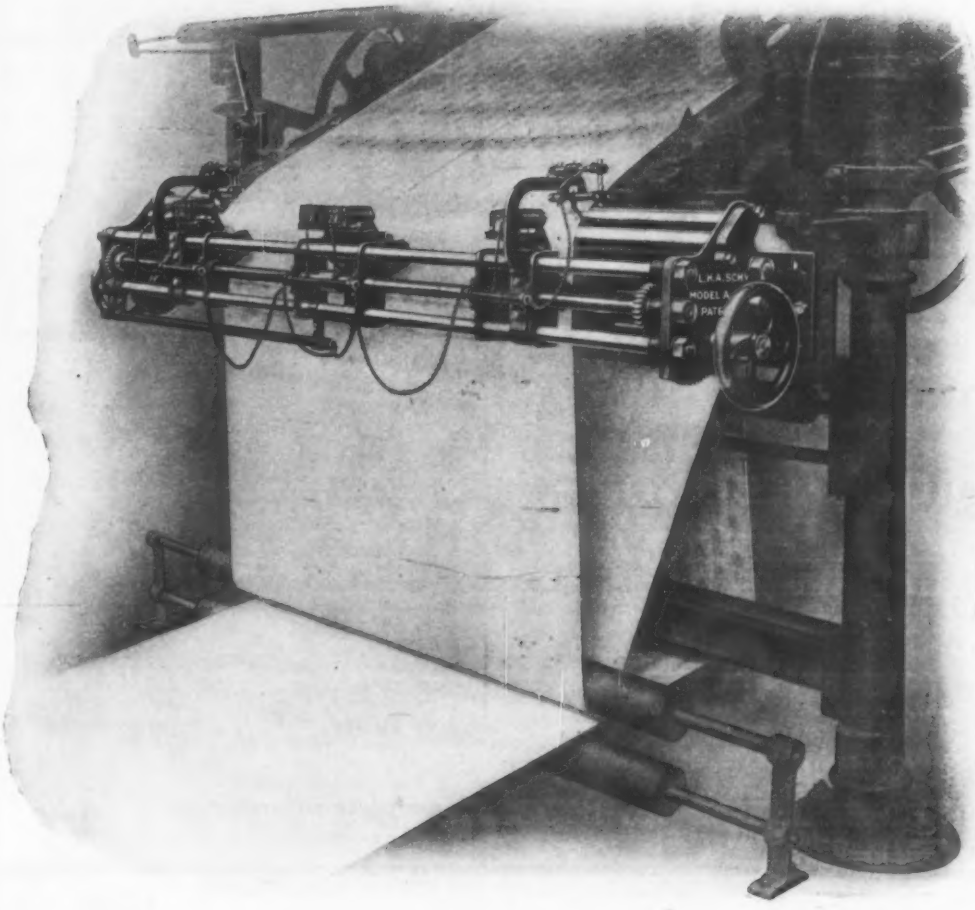
OAK LEATHER TANNERIES - BRISTOL, TENN,

—DUXBAK—

The Belt of Universal Use

Automatic Electric
CLOTH FEEDERS



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Straight Side Bulbs Clear

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Mazda "C" Lamps 105-125 Volts

100 Watt	1.25	1 00	400 Watt	5.00	4.00
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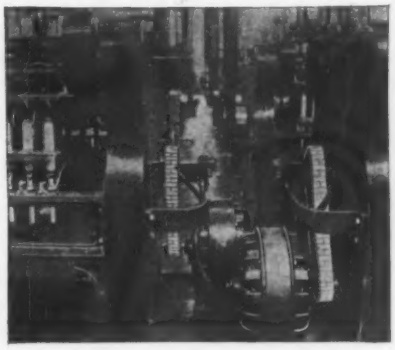
MORSE Silent Chains



5 horse power MORSE Silent Chain Drives to Textile Spinning Frames. S. O.-9010

OVER 28,000 operating hours service is the record of some 7 1-2 HP MORSE Silent Chain Spinning frame drives, and *still going well.*

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MORSE Silent Chains are the ideal drive for textile machinery of all kinds,—silent in action, highest in efficiency, durable, and reliable at all times and in all locations.

Flexible like belting, yet positive like gearing. Space savers, because the shortest centers are permissible without loss of efficiency. Production boosters because of their 99% sustained efficiency.

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Rotary Dyeing and Washing Machine

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"Builders of The Best"

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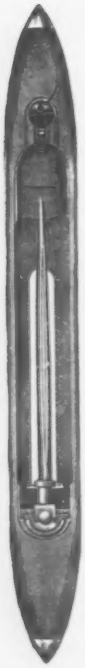

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"Why do you do this?" asked the Treasurer. "For various reasons," said the Purchasing Agent, including the following:

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(*b*) These shuttles reduce warp and filling troubles and reduce the stoppage of looms.

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(*d*) Shambow Shuttles reduce our bobbin expenses because the spindles make it easy to doff the bobbin without clipping the base and there are special catches for ringed bobbins.

All these things tend to increased loom production with a low cost for shuttles. If you want these economies in your mill—just say the word and we will tell you how to get them.

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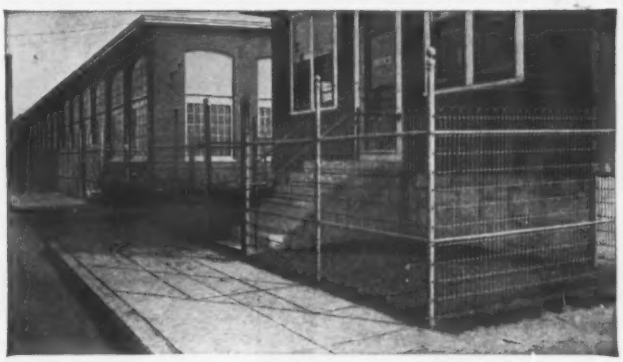
A Fence for Factory Buildings



must be substantial. And it should be neat and attractive. When you go to the expense of enclosing your plant you do not want to do the job over again in a year or two. The line of

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fences presents a great variety in the substantial kinds of fence **for Factories, Recreation Grounds, Playgrounds, Public Parks, Large Estates, Cemeteries and Public Buildings.**

Excelsior Rust Proof Fences are made of heavy wires and the heavy galvanizing prevents rust. The wires are clamped together at every crossing with patent clamps, so that they cannot be sprung or twisted out of place. Excelsior Rust Proof Fences are most economical because they last for many years.

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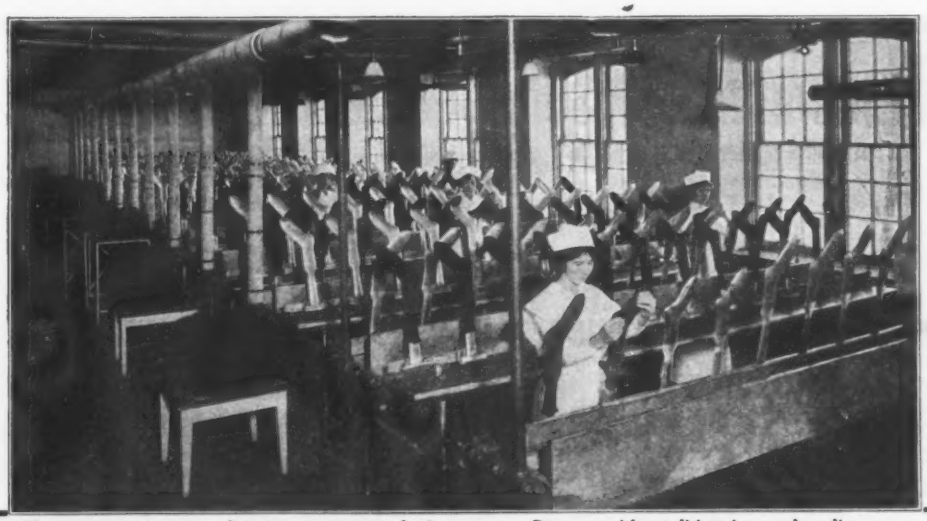

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Piece-End
Sewing Machine

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Sews any fabric, thick or thin, wet or dry, without change

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Westinghouse Electric Type CS Four Frame Motor

WITHOUT doubt, the most satisfactory four-frame motor ever produced.

Bearings and shaft are extra heavy.

Forged steel frame and feet insure great strength with minimum weight.

Rotor practically indestructible.

No ventilating ducts in the cores.

Efficiency unusually high.

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Stator coils are form wound and laid in open slots.

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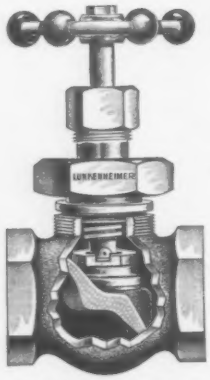

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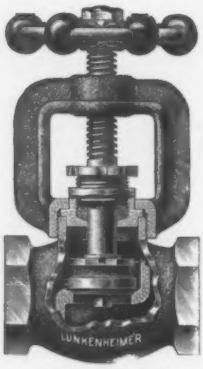

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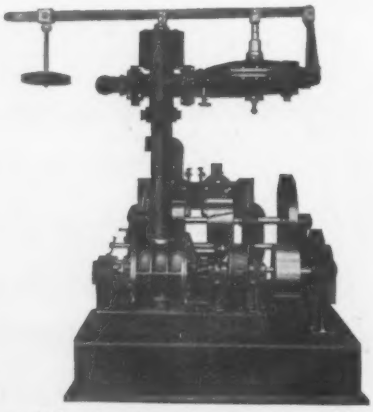

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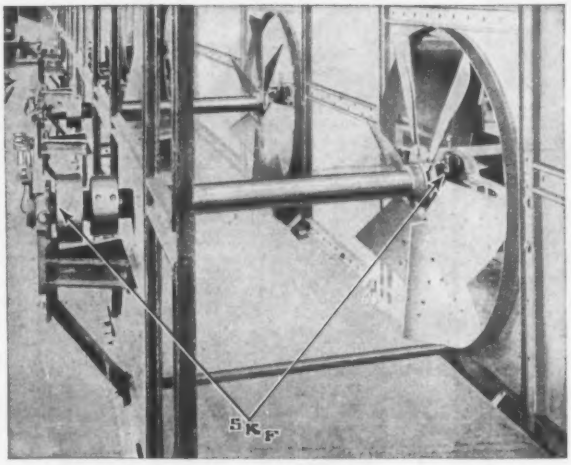

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The efficient operation of your dryers demands the use of free-running fans — ball bearing fans.

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Specify SKF Ball Bearings on Your Dryers.

Save power and avoid bearing trouble.

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SKF BALL BEARING CO.

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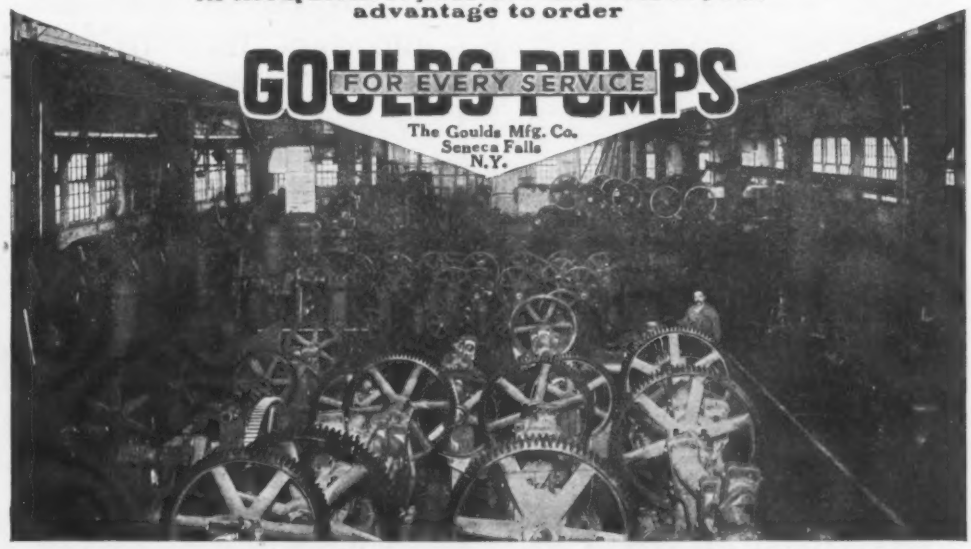
Take a Look At This Stock Room

and you will be convinced that whenever you want a pump in the quickest possible time it is to your advantage to order



A Corner of our Power Pump Stock Room where standard types and sizes of Triplex and Centrifugal Pumps are ready for prompt shipment

Decide *Today* Not to Waste Your Trucking Dollars

To postpone the installation of the platform system of trucking in your mill is to allow a daily waste of profits in the form of useless labor and lost time that could easily be avoided.

What logical reason have you for such a delay? Are you averse to saving money? Hardly! Then why in the name of good sound business judgment do you not equip with

NATIONAL CHAPMAN ELEVATING TRUCKS

and save from 50% to 90% of your present annual trucking costs. Hundreds of the largest most representative concerns in the land are "National Chapman" users. They saw a chance to cut excessive trucking costs and grasped it. Why not you?

Ten standard models allows for a variety of sizes and styles from which to choose.

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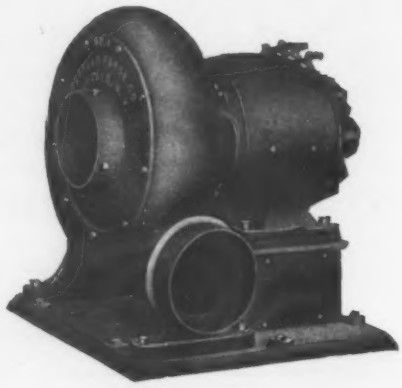
Buffalo Slasher

and

Cotton Gin Fans



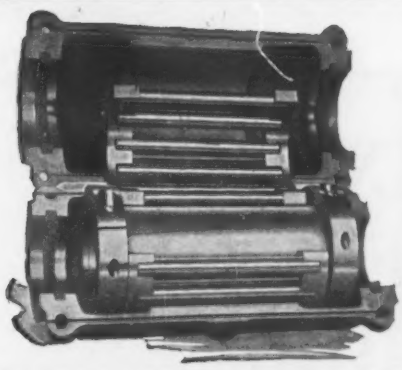
The power consumption in any fan is way more important than its initial cost.

Our engineering staff will gladly help you find out just the most suitable fan for your service.

Write today giving us full information about your problem.

Buffalo Forge Company
Buffalo, N. Y.

Branches in principal cities.



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"Sell" Roller Bearings (which effect continual savings) are installed in many of America's most prominent plants. They have paid for themselves rapidly in every instance.

They are easily and quickly applied, have enviable service records, and are ***guaranteed to cut friction load 50% or more.***

May we explain them fully. A postal from you is sufficient.

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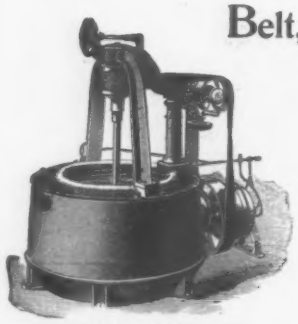

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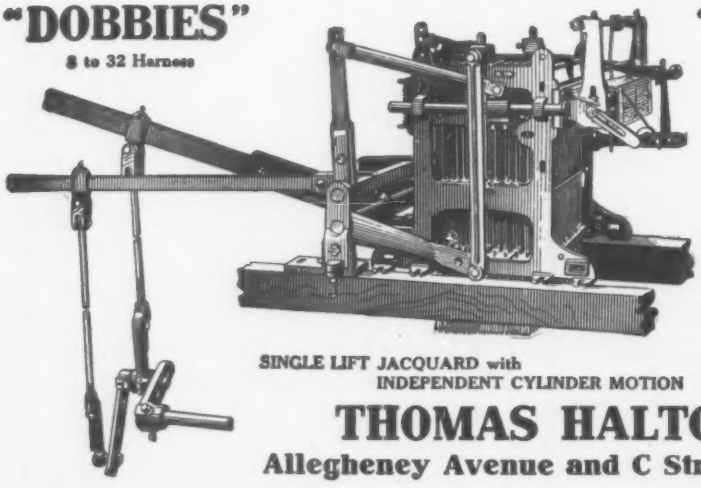

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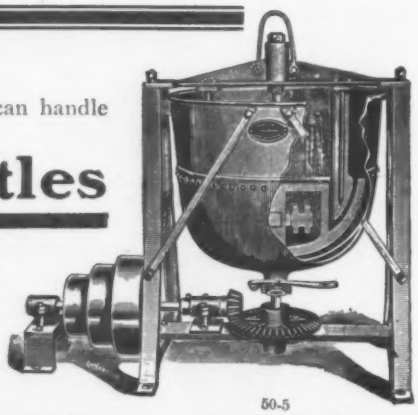

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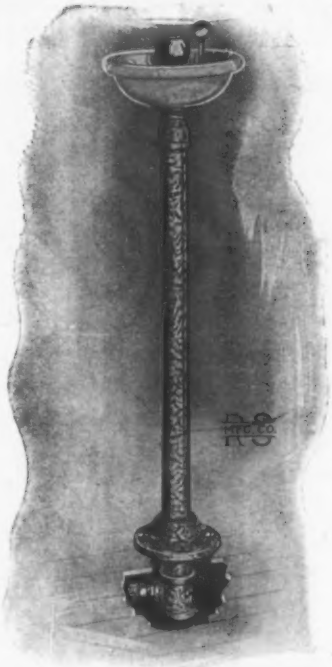

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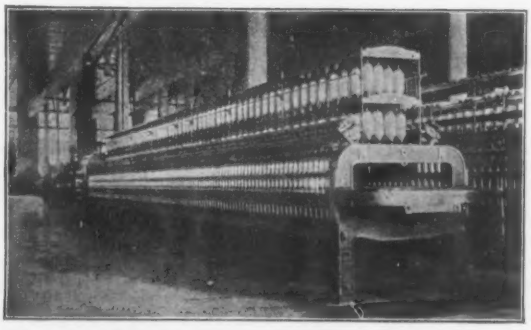

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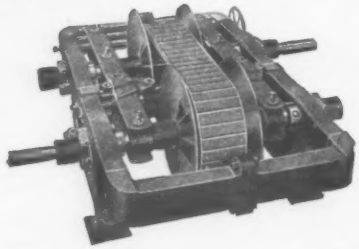
gives any speed by only turning a hand wheel.



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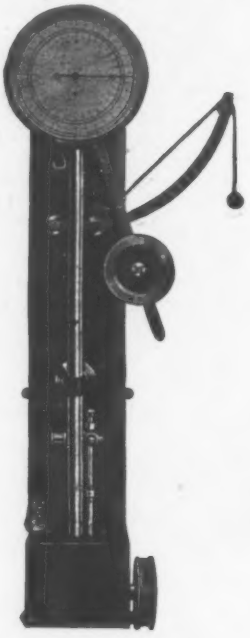

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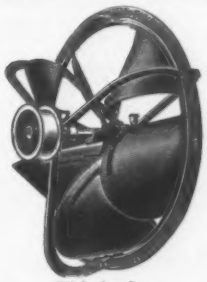

This is the
BERRY WHEEL OR FAN
WITH NO BACK DRAUGHT
the most effective agent on the market for drying and for eliminating steam and other impurities from the air.

It Makes Perfect Seams,

Even when run by
Low-Priced Help

No. 1 Portable Hand-Power
Railway Sewing Machine

For the finishing processes at your Shears, Gigs, Calendars, Printing Machines, etc., this machine will be found especially desirable, as it is easily moved about, and sews a firm chain-stitch; can be easily removed after the goods are finished.

When a seam is finished, the head is released by a hand nut, each seam must be perfectly straight, can be sewed very near the edge; taking out the seam saves waste; each piece of cloth is stretched alike, the cloth comes out even—these things are not possible by any other method.

These machines are built of different lengths and will sew wet or dry, thick or thin goods.

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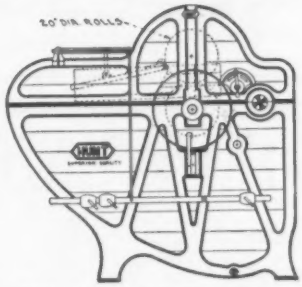
TYPE M Double Braced Fulling Mill



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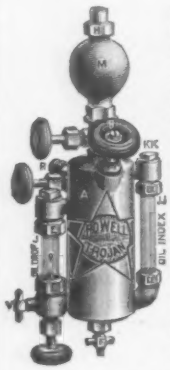

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Saves Power and Fuel!

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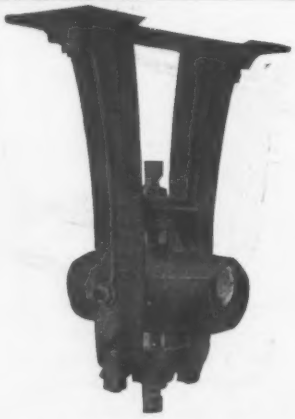

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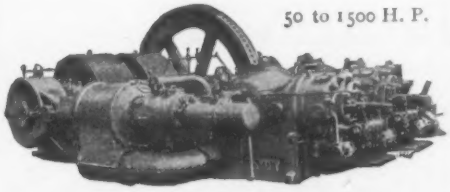

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It pays to buy the best—the Gandy belt is the best by test.

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It does not have the riveted seam that strains and breaks the sliver

NO SEAMS OR RIVETS

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Rapid Cheap Safe

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This picture shows how easily one man can hoist a 500-lb. bale of cotton. How do you pile?

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Some of these reasons are:

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TEXTILE WORLD RECORD

Published on the 12th of each month by

LORD & NAGLE COMPANY

FRANK L. NAGLE, President. HENRY G. LORD, Treasurer.

SAMUEL S. DALE, Editor

Publication and Editorial Office

144 Congress Street, Boston

119 South Fourth Street, Philadelphia. 120 Liberty Street, New York.

537 South Dearborn Street, Chicago.

Entered at the Boston Post Office as Second Class Mail Matter

Subscription Rates.

Textile World Record, in the United States and Mexico	$2.00 per year
To Canada, on account of extra Postage	2.50 per year
To other Foreign Countries (postage paid)	3.00 per year
Textile World Record and the **Official American Textile Directory** (Traveler's Edition)	3.00 per year
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A Complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

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The insistent demand of the consumer for Fast Colors makes it imperative that the Retailer, the Jobber, the Cutter-up and Textile Manufacturers recognize the question, Fastness of Colors, as a most important one

Indigo The introduction of synthetic Indigo by the Badische Anilin-& Soda-Fabrik in 1897 greatly lowered its cost, simplified its application and placed it on a scientific basis. The immediate practical result has been that Indigo is used on an ever increasing scale in the production of overall goods (denims) for working garments worn by artisans of all classes everywhere, as well as for navy blues with white designs, in percales, and similar fabrics which are so largely used the world over for women's house and working dresses. Nothing has yet been found which is as well suited as Indigo for these and many other purposes, since it combines minimum cost, brilliancy of color and satisfactory fastness. In fact, the word "Indigo" to the consuming public is a guarantee of a durable and satisfactory color.

Indanthrenes Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To Dr. Rene Bohn, Director of the Badische Antlin-& Soda-Fabrik, Ludwigshafen a/Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Indanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fibre lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

BADISCHE COMPANY

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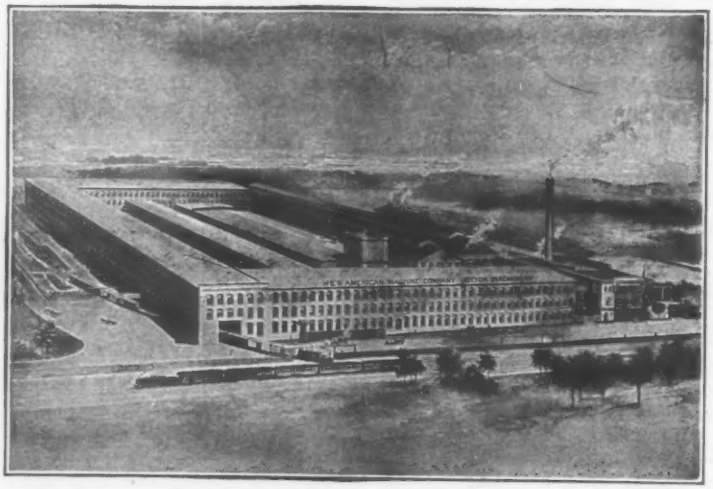
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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ATLANTA OFFICE
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TEXTILE WORLD RECORD

APRIL, 1915

Monthly Comment.

The Textile Industry and the Chemist

The address by Bernhard C. Hesse, a consulting chemist of New York, before the American Chemical Society, at New Orleans, an abstract of which appears in this issue, is of special interest at the present time owing to the loss of the German supply of dyestuffs. Much of the address is devoted to extolling the achievements of American chemists and to defending them against the charge of having neglected their duty by failing to build up a dyestuff industry in the United States. This part of the address, however, is creating a man of straw and then beating it to pieces. There has been no serious attempt to disparage the American chemist in this connection and the failure to establish a dyestuff industry here is quite generally ascribed to a combination of varied conditions, among which a lack of ability on the part of American chemists is not included. Mr. Hesse states one of these factors when he refers to the failure of Congress to provide adequate tariff protection for the dyestuff industry.

At one place in his address Mr. Hesse attempts to prove by statistics that "there was not any serious shortage of dyestuffs." Such a statement might have passed unchallenged during the first six months of the war when Germany was feeding our mills with just enough dystuffs to keep them in motion, but on April 2, 1915, when Mr. Hesse read his New Orleans address, the embargo on German Commerce made it ridiculous. Its appearance at that time indicates that Mr. Hesse wrote his address far in advance of its delivery and at a time when the ferryboat service between Rotterdam and New York was providing our textile industry with a hand-to-mouth supply of German colors.

Since the war disclosed the perilous dependence of the United States on foreign countries for our supply of dyestuffs there has been a vigorous demand from all quarters that measures should be taken to remedy this humiliating situation. Here is Mr. Hesse's reply to that demand:

> An obvious question at this point is that if the dyes are so vital to the textile makers, and the American dye makers will not make them, why do not the textile makers invest their money in a dyestuff plant and charge up any losses that they may sustain thereby as insurance premium to insure the sale of their goods and the profit therefrom resulting, just as they make their own soap, if need be? There is no ethical nor professional reason against so investing their money.

Lord Macauley once remarked that "some blunders seem rather to deserve a flogging than a refutation," and to this class belongs Mr. Hesse's proposition that in this crisis, when through the neglect of the people's representatives the country finds itself dependent on a foreign supply of dyestuffs, the manufacturers of textile goods be compelled to make their own artificial colors or go without them. As well ask them to grow the wool they consume, build the ma-

chinery they operate, refine the oils they use or do any other impracticable thing. As well ask the manufacturers of chemicals when deprived of fuel by a disturbance of the peace, to mine and transport their own coal or go without it. This passage from Mr. Hesse's address indicates that the fact has not yet dawned on his mind that the problem is to provide, not merely the textile manufacturers, but the American people, with dyestuffs. It is a national question and if Mr. Hesse's preposterous proposal is to be accepted, the textile manufacturers of the country can provide the people with undyed clothing more easily than with the colored product.

Fully as deserving of a flogging is Mr. Hesse's suggestion that "the textile makers (meaning manufacturers) make the problem a great deal easier for the American chemical manufacturer by making up a statement of the chemical nature of all dyes that they use, the amount used annually of each, and the average prices at which they have been purchasing them." It is difficult to avoid the conclusion that such suggestions are offered in order to obscure and not to provide a solution for the present difficulty.

Mr. Hesse has this to say about patents and the dyestuff industry;

> The remedy that some of these newspapers and other equally ill-informed persons suggest is to alter the policy of our patent laws by introducing requirements for compulsory working. That is, by thus radically altering our policy, we are at once going to get a coal-tar dye industry.

The amendment of our patent law has been proposed not as an open sesame by which a coal-tar dyestuff industry can be created in the United States, but as one of several measures, all of which are necessary in order to give the American builders of such an industry advantages equal to those possessed by the German coal-tar chemists during the last fifty years. Mr. Hesse attempts to discredit the working clause proposition with this question and answer:

> After the law had been in operation six years and a half and Great Britain could no longer deal with Germany, what was the result? Was Great Britain able to supply its own needs of coal-tar dyes? Certainly not.

The fact, of which Mr. Hesse is unaware or which he prefers to evade, is that the British working clause of 1907 shortly after its enactment was practically nullified by the decision of Judge Parker in the Hatschek case, placing the burden of proof on the petitioner for revocation. Until that decision there was unmistakable evidence that the clause was bringing important industries to British soil. A long list of such enterprises were named in our issue of September, 1908. From the date of the Parker decision until the breaking out of the world war the British working clause was practically without effect. That the British authorities recognize the necessity for a working clause in developing a dyestuff industry is shown by the patent clause in the prospectus of the British dyestuff company, which appears in this issue. Mr. Hesse refers to a working clause that was on the statute book in this country from 1832 to 1836 and says:

> If it was bad policy for us then, and experience proved it to be, why should it be good policy for us in 1915 to try the same thing over again?

The industrial conditions of 1832 afford a poor guide for 1915, and a working clause that was repealed in 1836, less than four years after its enactment is a still poorer guide at the present time.

In this connection it is well to bear in mind that the efficiency of a working clause is not to be judged by the number of patents suppressed under it, but rather by its effect in compelling the working of inventions in order to prevent their revocation. If a patent is valuable it will almost certainly be worked to keep it in force. If it is not valuable, no one will consider it worth while to secure its revocation, even if it is not worked. Thus, a working clause may be highly efficient in accomplishing its object, although there may be no cases of revocation under it. In this respect it resembles a watchdog whose value as a protector of life and property depends on the certainty that he will act if occasion for action arises.

If Mr. Hess were not delivering an address on a technical subject before a scientific society this prediction of retaliation would lead to the conclusion that he wanted to entertain his hearers with a joke.

> Another thing that must not be lost sight of is when we put such an Act upon our statute books we expose ourselves to retaliatory measures.

Is Great Britain, France or Germany to retaliate on us for following their example? Mr. Hesse's laborious efforts to prove that a working clause would amount to nothing in the United States suggests the question: If that is true, then why does he combat it so fiercely?

Mr. Hesse's conclusion of the whole matter is thus summed up:

As a matter of fact, the whole world's coal-tar dye consumption is about enough to make a decent sized business for one country. Ordinarily it is best to do the world's work where it can be done best and to transport the products from their place of manufacture to their place of consumption. If it be necessary, for other reasons, that these products should be made elsewhere under conditions economically less favorable, then those who want those products made at such economically unfavorable place should bear the burden, but that is precisely what the dye users do not want to do; they want someone else to foot the bill.

That passage is a concise statement of the practical application of the free trade doctrine. Regardless of domestic industry, regardless of national independence in industry, regardless of the importance of diversified occupations to suit the varied capabilities of the people, regardless of every other consideration, buy in the cheapest market! While the present crisis with the threat of untold losses to this country because of the lack of foreign dyestuffs does not shake Mr. Hesse's perfect complacency regarding the desirability of cheap foreign dyestuffs, the proposal to develop the coal-tar industry in the United States arouses his deep indignation. The issue now becomes a moral question and the unpatriotic textile manufacturers who refuse to meet their moral obligation by manufacturing their own dyestuffs for the benefit of 100,000,000 people are held up to scorn in this fashion:

The textile makers say that if they do not get those dues, 2,000,000 people in this country will be thrown out of work, and in order to prevent that, the chemical manufacturers of this country must go down into their pockets for millions of dollars. Now, who brought those 2,000,000 people into the textile business? Who has the moral responsibility of keeping those 2,000,000 people employed? Is it too much to ask the textile maker to give up, say 5 per cent. of his profits and keep his word and live up to his moral obligations, or should the chemists of this country furnish millions of dollars to enable the textile workers to keep their word with the making of which the chemical manufacturer is in no wise concerned? Is it patriotic to decline to give up 5 per cent. of your profit in order to keep 2,000,000 people at work, for which 2,000,000 people you are morally, directly, responsible? Is it unpatriotic to decline to furnish millions of dollars to aid in the keeping of a promise with which you had nothing whatever to do, and from whose keeping you have nothing whatever to gain?

From an economic, a moral, or a patriotic point of view, the responsibility for and the financial burden of making coal-tar dyes in this country rests squarely and solely upon the users of dyestuffs, and in no wise, whatever, rests upon the chemists or the makers of chemicals in this country.

A great industry which provides the population of the United States with one of the primary necessities of life is threatened with paralysis because of the loss of its foreign supply of chemical products which the American chemical industry has failed to manufacture. In such a crisis textile manufacturers and the public have a right to expect from a member of the association representing American chemical manufacturers something besides the mockery with which Mr. Hesse has filled his New Orleans address.

Bureau for the Exchange Dyestuffs

The possibility that there are woolen and worsted manufacturers who have in stock dyestuffs for which they have no use and which are needed by other manufacturers has led the American Association of Woolen and Worsted Manufacturers to address the following letter to its members:

Gentlemen:—Having in mind the fact that the dyestuff situation has reached an acute stage and may grow worse, the executive committee feels that the association might be of service to its members in acting as a bureau for the exchange of information regarding dyestuffs.

If you wish to avail yourself of this service, it is suggested that you submit to the secretary a list of dyestuffs of which you are in immediate need, with quantities, and a list of those which you have in excess of your needs, with quantities available.

The association cannot of course undertake to buy or sell but it may be able to establish connections that will be mutually profitable.

There was sold on the Chicago market during the year 1914 over $8,000,000 worth of mature sheep and nearly $24,000,000 worth of lambs, at a general yearly average price of $5.15 per hundred pounds for sheep and $7.65 for lambs.

South American Trade, Weights and Measures

Since the war began last August statements have frequently appeared in papers that ought to know better, to the effect that the use of our English system of weights and measures is an obstacle to the development of export trade, and that the remedy is the adoption of the metric system. This newspaper campaign received a fresh impetus from a sort of official sanction in the form of a strongly pro-metric article in "The Nation's Business," the organ of the United States Chamber of Commerce, which began with the statement that it was prepared by "an expert on weights and standards in the service of the Department of Commerce." The article contained the following statements regarding foreign trade:

> In our exports the metric countries generally require our merchants to invoice their exports in metric units.
>
> Clearly the burden of two systems is a serious one in the export trade.
>
> So serious is this obstacle to the development of foreign trade, that the American Chamber of Commerce of Paris held a special meeting some time ago and urged in a series of resolutions that Congress should take steps to bring about the early adoption of the metric system.

One of the most inexcusable of these press notices appeared in a recent issue of "Collier's Weekly." A cartoon represented Europe driving for South America's trade in a racing automobile labeled the "metric system," while the United States lagged behind on an antiquated bicycle labeled "feet and inches" and "pounds and ounces." The comment by "Collier's" contained this:

> Since 1799 the metric system has been adopted as obligatory by other countries, among them Argentina, Brazil, Chile, Mexico, and Peru. In Central and South America the metric system is practically universal, and when we try to sell cloth by the yard and other things by the pound we are butting up against one of the strongest forces in human nature, viz., habit. Uncle Sam knows a good deal about how to make money, and it is noticeable that he long ago applied the metric system to his coinage. We shall not capture the bulk of the South American trade by adopting a new system of weights and measures, but it w certainly help.

It would be difficult to crowd into an equal space a greater amount of error and fallacy than appears in that passage. The reference to money and the metric system shows that the writer did not know of the radical difference between coinage and measures, nor of that between decimals and the metric system. The base used for counting is the best for money, because the use of money consists in counting, in addition, subtraction, multiplication and division. That is why decimals are the most convenient base for currency, although even for this purpose the shortcomings of the decimal system have led to the use of binary divisions in our currency system. On the other hand the experience of mankind has proved conclusively that an exclusively decimal base falls far short of meeting the requirements for measuring and weighing material substances. For weights and measures the best system is one in which, as in our own, the units are divided, not only decimally, but by successive halving or in any other desired way.

The point to which we desire to call particular attention now, however, is "Collier's" errors regarding the textile trade. There is nothing to prevent exporters of textiles from measuring and invoicing their goods by such standards of weight and measure as their customers in foreign countries may prefer. That is the practice now and under it the Euglish yard and pound are the leading textile standards of the world. Exporters of cotton cloth, not only in England, but in France, Germany, Belgium and Holland and other so-called metric countries have been compelled to measure and invoice their goods by the English yard when selling to the principal cotton goods markets of the world, China for example. In South America cotton cloth is imported by the yard or meter, chiefly by the yard. The writer in "Collier's" apparently thinks that it is necessary to upset the established weights and measures of the United States in order to sell cotton cloth to South America by the meter.

Another and equally inexcusable error is the statement that "in Central and South America the metric system is practically universal." Even if that were true, it would afford no reason for changing our weights and measures in order to aid the export trade in cloth, because the measuring and invoicing by any desired standard is a trifling matter. The fact, however, is that the in-

troduction of the metric system into Central and South America has resulted in general confusion, as it added new weights and measures without getting rid of the old standards. Fortunately there is the best of evidence available on this point. In his reports on cotton goods in Latin America, U. S. Special Agent W. A. Graham Clark within the last four years has given information regarding the weights and measures of the various countries. A careful examination of his reports discloses that in only two, the small states of Uruguay and Paraguay, does Mr. Clark state that the exclusive use of the metric system is enforced. The condition in the other countries is shown by the following extracts from his reports:

Chile

Chile has officially adopted the metric system, but in the shops throughout the country the vara is still the recognized length for retail selling. It is therefore not of great importance to mark goods in meters, unless specially so required, and the bulk of the English goods come in yards.

Bolivia

Bolivia has officially adopted the metric system, but the old Spanish weights and measures are those commonly used. All cloth is retailed by the vara, which in Bolivia, as in Chile and Peru, is equivalent to 83.6 centimeters, or 32.91 inches.

Peru

The Peruvian importers buy cotton goods by the yard, the meter or the vara, and the native mills sell tocuyos by the cut of 40 yards. Although the country has officially adopted the metric system, the cloth is always retailed by the vara of 83.6 centimeters, or 32.91 inches.

Ecuador

Cloth is bought and sold by the importer by the yard, meter, or vara, but it is always retailed by the vara.

Brazil

Prints come in all lengths, and those from England and the United States are usually marked in yards. A few of the importers request making in meters, and these prefer cuts of not over 30 meters (32.8 yards). Goods are bought by the yard or the meter and retailed by the meter.

Columbia

An instance of the conservatism of the retail merchants in this respect was strikingly shown during the recent civil war, when the Bogota importers found it necessary to get some white goods from the Barranquilla importers. On arrival the importers found them almost unsalable because they were in the coast lengths of 20 yards instead of the customary Bogota lengths of 24 yards. It would seem that, as the goods are finally retailed by the vara, the length of cuts would be immaterial, but acording to the importers it has a strong effect on the salability of the cloth, and this peculiarity must be catered to in order to obtain the business.

Cuba

Though the metric system of weights and measures is the official and legal system of Cuba, some Spanish weights and measures are still largely used, among them being the arroba, of 25.3664 pounds, and the vara, of 33.384 inches. Cloth is bought by the importer by the meter or yard and is retailed in the shops by the yard or the vara, the vara being more commonly used.

Honduras

The importers sell to the retailers by the yard, and the retailers sell at practically the same price or a little more by the vara. The "vara" was a Spanish measure originally, but in "Latin-American countries it varies from 32.874 inches to 34 inches, according to the locality. In Honduras it is usually considered as 33 inches. This country has officially tried to adopt the metric system, but the natives cling to the vara and the arroba as their measures of length and weight.

Nicaragua

The 24-inch manta retails now (July, 1909) at 40 centavos (4.4 cents gold) a vara of 33 inches.

The Turkey-red shirting is mainly from England. is 27 inch, 68 by 52, retailing at 80 centavos (about 9 cents gold) a vara.

The most usual price for the 24-inch print is 60 centavos (5.5 cents gold) a vara.

Salvador

Practically all export yarn is put up in either 5 or 10-pound paper-covered packets and either 80 or 40 of these packed to the bale. Yarn is retailed here in 10-pound lots, but two 5-pound packets are preferred to one 10-pound.

On gray drills 30 inches wide the Americans have the bulk of the trade. Gray goods are demanded in either 40 or 24 yard lengths; the white goods are mainly in 24-yard lengths, while prints come in all lengths, but the most popular is the 30-yard. Formerly all prints were sold by the "piece" to the Indians, and this was always 30 yards, so that this length is still the most popular for these goods.

These splits are 20 to 26 inches wide, but mainly 20-inch, 60 by 48, and retail at a real a vara.

These are typical extracts showing the use of the Spanish vara and English yard in South and Central America. The report also shows that the world standard of 840 yards per pound is used for both the sale and manufacture of yarn in Latin America. The introduction of the metric system has caused confusion, because, to use the word of "Collier's" it "butted up against one of the

strongest forces in human nature, viz., habit." The law could force a new system into South and Central America, but it has not forced the old weights and measures out. This has been the case wherever a compulsory metric law has been enacted. The same result would follow if the experiment was tried in the United States, only the confusion would be immeasurably greater and more hopeless because of the greater extent and complexity of industry and trade in this country.

Latin America offers striking proof of important truths regarding the regulation of weights and measures. There the mistake was made of introducing the metric system by compulsory law. There the people cling to the old Spanish measurement because the sizes and the divisions of the units are better suited for human requirements. There we find the confusion in which all metric countries are involved. And there also is to be found our English system in steadily increasing use. These conditions point the way to both North and South America. They show that the wisest plan is to make the weights and measures of the United States conform to the established English standards, and to restrict the use of the incommensurable metric units to the narrowest possible limits. And they show South and Central America, Mexico and the West Indies that uniformity of Pan-American weights and measures can be best promoted by encouraging the use of the system now established in the British Empire and the United States. This is the course of reason and common sense as opposed to that which finds its support in the fallacy and error of which the extracts from "Collier's" and "The Nation's Business" are examples.

Made in the United States

Timely and valuable suggestions for remedying difficulties in the textile trade were made by C. E. Wry, secretary of the National Association of Retail Clothiers, in his recent address at Des Moines, Ia., an abstract of which appears in this issue. Instead of clamoring for the lifting of the British embargo on wool Secretary Wry urged that the small farmers throughout the country be encouraged to keep sheep on their land and thus provide a supply of wool that will be beyond the reach of embargoes by foreign nations. The Iowa Agricultural Department and the Wool Growers Association have promised to cooperate with the Iowa Clothiers Association in this work of developing the domestic wool supply. Another subject to which Secretary Wry gave his attention was the supply of dyestuffs. He called attention to the need of a working clause in the patent law, as provided by the Paige bill, to be supplemented by a tariff on dyestuffs. It is exceedingly gratifying to have the representative of the retail clothiers, who deliver wool clothing to the ultimate consumers, take such a broad and farseeing view of problems affecting the trade.

New Textile Machinery Exhibition for Boston in 1916

The next national exposition of textile machinery will take place in Boston. It will be held in Mechanics Building in April, 1916. This was unanimously voted at the recent annual meeting of the Textile Exhibitors Association in Boston.

Chester I. Campbell, secretary of the association and general manager of the exposition, was authorized to make arrangements for the next exhibition. The members of the board of directors were very enthusiastic over the idea of another "show," declaring that the last exhibition was such a big business getter that they have had repeated inquiries as to when the next would be.

Because of the peculiar conditions that now exist the board of directors feel sanguine that insofar as the manufacturers of cotton, woolen and knit goods machinery are concerned that it will bring forth a still greater number of exhibits than the 1914 show, which was the largest of its kind ever held in the world.

General Manager Chester I. Campbell has started his plans for the 1916 exposition. Information regarding the exposition can be obtained from Mr. Campbell, by addressing him at 5 Park Square, Boston.

Moisture Regain For Worsted Tops

Several months ago a committee of wool manufacturers consisting of Walter Erben, John Fisler, Harry Hartley, George Mabbett and John W. Nary, was appointed by the National Association of Wool Manufacturers to investigate and report on the establishment of a standard for moisture regain for wool. This conditioning committee, at the January meeting of the association, presented a report which was summarized by Secretary Marvin as follows:

> A special committee on conditioning, after inspection of the plant of the United States Conditioning and Testing Co., at New York, and that of the Bureau of Standards at Washington, has reported its conclusion that a 15 per cent. regain is the proper basis for the buying and selling of tops, and that in the absence of public conditioning houses the establishment of a condition bureau for yarns is not advisable.

The objections to the proposed 15 per cent. allowance are so serious that it is difficult to believe the members of the committee meant to recommend it as a permanent standard for moisture in worsted tops in this country. It has been argued that a standard for moisture regain should be lower than the actual regain in order that the buyer might be gratified by finding the actual weight of the material to be greater than the conditioned or invoice weight. This, which may be considered the psychological reason, presupposes that the buyer is ignorant of the effect of conditioning and does not understand that the price is based on a standard amount of moisture and that the excess of weight received is but so much water. There will, however, be general agreement on the proposition that a standard for moisture should correspond approximately with the average amount of water in the material as found in commerce.

The fact remains, however, that it makes no real difference to either buyer or seller whether the allowance for moisture regain is 15 per cent., 18 1/4 per cent. or 19 per cent., so long as the standard is accepted and clearly understood by all buyers and sellers. Prices adjust themselves automatically to any standard just as they would if the size of the pound were increased or diminished. It follows that the particular allowance recommended by the conditioning committee of the National Association of Wool Manufacturers would be of no special importance if the standard was proposed for an industry that had been doing business without a standard or if the allowance recommended, in this case 15 per cent., was the only standard accepted in any part of the trade. It is at this point that the objections to the 15 per cent. standards develop, because standards for moisture regain for tops are very firmly established throughout the greater part of the world's worsted trade. The following statement of the case is taken from the Handbook of the Manchester (Eng.) Testing House and Laboratory:

> The various standards of moisture were first authoritatively fixed at the "International Congress for the Establishment of a Uniform System of Numbering Yarn," held at Turin in October, 1875.
>
> The following "Regains" for the various yarns were agreed upon:
>
> 18 1/4 per cent. for worsted.
>
> The regain standards of the Bradford Conditioning House are as follows:
>
> 19 per cent. for tops combed with oil
> 18 1/4 per cent. for tops combed without oil.
>
> The above series of standards have been accepted by all European testing and conditioning houses, and no other competing standards can be said to exist, although higher standards are occasionally suggested.

The worsted trade in the United States has been carried on practically without established standards for moisture regain, transactions having been based on the actual weight of the materials at the time of shipment, although in the worsted tops trade, there has been a more or less binding agreement on an allowance of 15 per cent., with the tests left to the top manufacturer in the absence of testing houses. This divergence between the loosely established American standard and the firmly established European standard has caused no inconvenience, because the American market for tops has until recently been self-contained, and unaffected by trade with foreign countries. That isolated position has been changed and the American tops industry under a tariff of

8 per cent. is now compelled to reckon with the competition of foreign mills. It is this changed condition coupled with the fact that the foreign trade in tops is based on standards of 18 1/4 and 19 per cent. that makes the proposed establishment of a 15 per cent. standard in the United States a serious matter, which should receive the most careful consideration before it is accepted.

If the manufacturers and sellers of tops in the United States are to do business with an allowance of 15 per cent. for moisture, while Europe sells tops on a basis of 19 per cent. the effect will be the same as if the American seller gave an extra discount of 3.36 per cent. on all sales. In other words it will mean that for every 100,000 pounds of tops delivered by the English topmaker on a 19 per cent. basis, the American topmaker or seller proposes to deliver the same quantity, but to charge for only 96,639 pounds, thus making the purchaser a present of 3,361 pounds, which at 60 cents a pound would amount to $2,016.60.

With an allowance of 19 per cent., 100,000 pounds of tops contains 84,034 pounds of fiber and 15,966 pounds of water, the water being 19 per cent. of the weight of the fiber. If only 15 per cent. is allowed for water in the same quantity of dry fiber, then the conditioned weight of the water will be 12,605 pounds; that of the fiber 84,034 pounds; and the total, 96,639 pounds. Assuming the price to be 60 cents a pound the comparative accounts for equal quantities of English and American tops are as follows:

England, 100,000 lbs. (84,034 lbs. dry fiber)	$60.000.00
United States, 96,639 lbs. (84,034 lbs. dry fiber)	57,983.40
Difference	$2,016.60

The present tariff of 8 per cent. ad valorem on $60,000 worth of tops is $4,800, so that at the same price per pound, the difference between an American allowance of 15 per cent. for moisture and the Bradford allowance of 19 per cent. would mean a reduction of the protective duty from $4,800 to $2,783.40; or from 8 per cent. to 4.64 per cent. ad valorem. This reduction is equivalent to an undervaluation of 42 per cent. In other words the difference between the 15 per cent. allowance approved by the conditioning committee of the National Association of Wool Manufacturers and the 19 per cent. established at Bradford is equivalent to invoicing at 34.8 cents per pound tops that are actually worth 60 cents.

There are only two remedies for the difficulty. One is to offset the difference in the moisture standards by a corresponding increase in the American price. In the example given above it would be necessary for the American seller to raise his price to 62.1 cents per pound on a 15 per cent regain basis in order to get as much ($60,000) as the English seller receives for the same amount of tops at 60 cents a pound. This method would involve the trade in interminable and complex calculations, affording opportunity for fraud and deception, a condition the very opposite of that which the establishment of standards is intended to create.

The other remedy is the adoption of the European standards for the trade in the United States. That would mean the acceptance of the same standards throughout the world, with the elimination of all the complications to which we have called attention, a condition of uniformity that fortunately prevails now in the cotton and silk trades. The objection raised to this course, that the European standards are too high for the climatic conditions in the United States, even if based on fact, would not be valid when considered in connection with the deplorable condition caused by a double standard. As a matter of fact, however, no evidence has been produced to show that the European standards for wool are too high for the United States. The best evidence we have found is to the contrary effect. When investigating the textile tariff schedules in 1913 we obtained from the U. S. Weather Bureau station at Boston a daily record of temperature and relative humidity at that place for the year 1912. We then calculated the actual moisture regain for wool from these observations and from W. D. Harts-

horne's tables of worsted regain. The results are summarized in the following table:

Highest, Lowest and Average Regain for Worsted at Boston for each month of 1912.

	Low	High	Av.
January	21.8	24.9	23.7
February	15.4	24.9	20.1
March	13.1	28.2	20.2
April	12.4	28.2	20.6
May	11.0	27.5	18.3
June	12.1	22.7	15.6
July	12.2	22.8	17.3
August	14.6	24.2	18.3
September	15.6	23.7	19.5
October	12.6	26.7	18.9
November	14.1	25.3	19.4
December	15.5	28.2	21.2
12 months	11.0	28.2	19.4

These figures indicate that the climatic objection to the Bradford standards, which would be negligible even if valid, is not warranted by the facts.

Another and important phase of the question is the effect of varying standards for moisture regain on different branches of industry in the same country as well as on their foreign and domestic transactions. For example it would be difficult to convince a top maker of the fairness of a system under which he is allowed to charge for only 15 pounds of water for every 100 pounds of fiber, while the spinner who purchased the tops and converted them into yarn is allowed to charge for 18 1/4 pounds of water for every 100 pounds of fiber. It might be easy to induce the spinner to submit to this arrangement, but the weaver who bought the yarn might have his doubts about the justice of the adjustment. It is necessary only to mention these complications in order to reveal the vast possibilities for confusion and fraud in the fixing of standards for moisture regain for wool, tops and yarn. It is evident from the facts we have stated that the standard for each product is closely connected with the standards for all the products of a fiber; that a standard for one product or one branch of the industry should be fixed only as a part of a complete and co-ordinated system for the entire trade; and that the moisture regain standards for the United States should be made to conform to the established standards of the rest of the world unless the most compelling reasons exist for a variation.

The Dyestuff Situation

Two distinct problems face the textile industry at the present time in connection with the supply of dyestuffs. One, relating to the present and near future, is to obtain enough dyestuffs to keep the mills running. The other, relating to the more distant future, is to provide ways and means by which the industry may be freed from the perilous dependence on a foreign source of supply for this necessity of industrial life. As these lines are written the situation so far as the first and more pressing problem is concerned, is desperate. The British embargo on commerce is expected to end the hand to mouth supply that has kept the American industry alive since the war began eight months ago. On March 24 the steamship George E. Warren from Rotterdam arrived at New York with what was probably the last substantial quantity of German dyestuffs to reach the United States until the end of the war. If that expectation proves correct and the war is prolonged, textile manufacturers will be forced to use such substitutes as they can find to eke out the meager supply of American dyestuffs, and after that expedient is exhausted to wait with unproductive mills until a treaty of peace gives them access to German colors.

The second problem, to make the American industry independent of the foreign supply, has up to the present time received but slight attention from manufacturers. One reason for this apparent indifference is unquestionably the mystery that surrounds the manufacture of dyestuffs. To textile manufacturers and their dyers, dyestuffs are raw materials about the manufacture of which they usually know and care nothing. If any of them ever attempted to gain a knowledge of the methods of manufacturing coal-tar dyestuffs they have found the subject so vast and involved in such complexity of chemical formulas and scientific details as to make further investigation a waste of time. Thus the textile industry has been developed into a position of almost complete dependence on

Germany, with our textile manufacturers looking upon dyestuffs, cotton, wool, silk and linen as necessary raw materials whose production is of but remote concern to them. The same state of indifference has prevailed in other countries, Great Britain, France, Italy, Russia, Spain and Japan, where the war has revealed the same dependence on the German dyestuff industry. In no country is the situation more serious than in Great Britain, where a textile industry giving direct employment to 1,500,000 people and producing over $1,000,000,000 worth of goods annually has depended mainly on German dyestuffs for its existence. The British Government, realizing that the question is a national, and not merely a trade problem, has taken the lead in the effort to find a remedy. The main features of the first plan proposed in November were as follows:

1. A limited company with a capital of £3,000,000 "to be subscribed by those interested," meaning the users of dyestuffs.
2. The Government to advance £1,500,000 drawing interest at 4 per cent., secured by a first claim and payable in twenty-five years.
3. The Government to appoint two directors of the company with power to veto any undue encroachment on the business of British manufacturers of products other than dyes and chemicals, or the giving of preference to consumers of the company's products. Stockholders to pledge themselves to purchase their supplies from the new company for a period of five years after the close of the war.

This plan failed to obtain the approval of the trade, and as a result a modified scheme was substituted early in March, the main provisions of which are stated in the official prospectus as follows:

British Dyes, Limited: Authorized Share Capital, £2,000,000, divided into 2,000,000 shares of £1 each. H. M. Government has agreed to advance to the company £1,500,000 to be secured by mortgage debentures carrying interest at 4 per cent. per annum.

The basis upon which the Government advance is to be made is £1 of share capital subscribed up to a total contribution of £1,000,000, and when that figure is reached £1 (up to a maximum sum of £500,000) for every £4 further share capital subscribed, though no part of the additional advance is to be made until the whole of the £1,000,000 of share capital now offered has been called up. For the first five years the payment of the interest will be non-cumulative and contingent on the net profits of each separate year being sufficient to provide it. Thereafter the interest will be cumulative, but payable only out of net profits, and the non-payment of interest will not carry a right of foreclosure. The advance will be repayable in 25 years or earlier in whole or in part at the option of the company. There is no compulsory sinking fund. The dividend on the shares will be limited to 6 per cent. per annum so long as any part of the Government advance is outstanding. It is thus seen that there may emerge in time, and if circumstances justify, a company whose resources might be £3,000,000 in subscribed share capital and possessing a loan capital of £1,500,000 at 4 per cent. interest.

Operations: The directors will, in the first place, consider the question of purchasing the business of Read Holliday & Sons, Limited, for which an option has been obtained, and they will continue negotiations already begun to acquire other dye-producing concerns. Negotiations have been initiated with the object of securing a supply of dyes from Switzerland, but the terms of such supply are still under discussion.

The existing plants of companies whose undertakings this company may purchase or financially assist, will be largely extended, and as progress is made and it is seen to be advantageous, the erection of entirely new works can be undertaken.

Considerable extensions are in progress in the works of Read Holliday & Sons, Limited, with a view to largely increasing their output, and as part of the terms of the option the Government have undertaken to advance £200,000 for this and other purposes, and in the event of the option being exercised the responsibility for the provision of the £200,000 will be assumed by this company.

Alcohol and Patents: The directors have satisfied themselves that the regulations of the Board of Customs and Excise will enable the company to obtain permission to use alcohol for its industrial purposes, free from duty, by arranging that the denaturing of such alcohol shall be carried out under conditions which will not hamper its use for such purposes and that the new Act of 1914 and the rules thereunder will enable the company to obtain on reasonable terms a license from the Board of Trade for the duration of the patents empowering it to manufacture commodities covered by any patents held by alien enemies so as to enable the community to enjoy the full use of the patented invention.

Technical Committees: The Articles of Association of the company contain powers for the appointment of committees, including a committee of persons conversant with the science and practice of dye manufacture, to advise the directors.

Research: In view of the opinions which have been expressed as to the important assistance which the German dye industry has derived from the elaborate organization which it has established for scientific research, and with the object of encouraging and assisting similar action here H. M. Government has undertaken to make a grant to this company for the purpose of experimental and laboratory work up to an amount not exeeeding in the aggregate £100,000, to be expended at the discretion of the directors within a period of ten years.

Staff: It is intended in carrying out agreements for taking over existing dye-producing concerns to retain as far as it may be expedient their respective chemists and staffs.

Priority of Supply: It must be clearly understood that those dyes which the company can provide, will, so long as the supply of such dyes is insufficient to meet the requirements of all classes of consumers, be primarily appropriated for supplying the wants to users who are shareholders and have entered into agreements to take the company's dyes.

The British plan is of special interest to American manufacturers because the situation is substantially the same in both countries. The trade in this country can study to advantage the development of the British plan and profit by the British experience. It is, however, not enough to wait for England to point the way. The situation does not admit of such a course. The need for a dyestuff industry is urgent and out of the crisis should come a business-like plan for remedying the humiliating situation that the war has disclosed.

The Smith Pure Textile Bill

Congress having adjourned the efforts to secure the enactment of so-called "pure textile" legislation have been transferred to the Legislatures of the various States, the latest move in this direction having been the introduction of the following bill in the Michigan Senate by Senator Smith:

A bill to compel all manufacturers, wholesalers, agents of wholesalers and manufacturers, and retailers, of all wearing apparel, to certify as to the percentage of wool, silk, linen or cotton contained in all garments offered for sale.

The people of the State of Michigan enact:

Section 1. All wholesalers, manufacturers, agents of wholesalers and manufacturers, and retailers of wearing apparel shall certify as to the percentage of wool, silk, linen or cotton contained in garments offered for sale.

Sec. 2. All wholesalers and manufacturers of wearing apparel shall be directly responsible to the jobber or retailer for any false statement or misrepresentation made by themselves or their sales agents with reference to the amount of wool, silk, linen or cotton contained in any garment, and shall be liable in damages for the loss suffered by said jobber or retailer.

Sec. 3. All retailers of any wearing apparel mentioned in Section 1 of this act shall place in writing on their sales ticket the percentage of wool, silk, linen or cotton contained in any article sold by said retailer. Said sales ticket shall be marked as follows: "All wool; all silk; pure linen; all cotton, or any fraction of wool, silk, linen or cotton."

Sec. 4. All garments offered for sale which contain any color, said colors guaranteed, shall be subject to an acid test and must stand the test if guaranteed on sales ticket.

Sec. 5. Any person, firm or corporation, or the agent of any person, firm or corporation, violating any provisions of this act, shall, upon conviction thereof, be punished by a fine of not less than ten dollars nor more than one hundred dollars, or imprisoned in the county jail for a period of not exceeding ninety days, or both such fine and imprisonment in the discretion of the court.

No sound objection can be offered to the general object of the Smith bill, which is to give to purchasers information regarding the goods offered for sale. Nevertheless the bill is ill-advised and impracticable for several reasons.

1. It is limited to one class of goods, wearing apparel, without reference to fraud and misrepresentation in the sale of all other kinds of merchandise.

2. It provides that wearing apparel shall bear labels giving certain information regarding its composition. This is impracticable as Senator Smith can easily discover by purchasing a few garments for men's and women's wear and undertaking to label the fabrics of which they are made to show the proportions of wool, silk, linen and cotton.

3. Even if such labeling were feasible, the information thus given would confuse the purchaser instead of helping him or her to form a correct judgment as to the value of the material.

4. Section 4 of the Smith bill, relating to the fastness of colors, is absurd because there is no acid test suitable for all colors.

Although Senator Smith's bill is impossible of administration and would be of little or no benefit to the consumer even if it were practicable, it indicates some advance in the ideas of "pure textile" statesmen, because of the omission of what has heretofore been a distinguishing mark on all of these bills, the clause requiring that goods shall be labeled to indicate the proportions of "pure wool" and "shoddy". This advance having been made we are encouraged to believe that it is not impossible to bring this class of legislators to a realization of the right way to protect the consumer against

misrepresentation and fraud in the sale of all kinds of goods, namely, a bill modeled after the British Merchandise Marks Act, forbidding the false description of goods of all kinds. There is a great opportunity for some member of a State Legislature to distinguish himself and render service of a high order to the public by framing and promoting a bill of that kind, which would serve as a model, not only for his own State, but for the entire country. The best place to begin such a service is in a State Legislature, for a State law would reach the retail trade where fraud and misrepresentation is at its worst. As a suggestion to Senator Smith and others who may be interested in our suggestion we give the following extract from the British Merchandise Marks Act, to illustrate the essential principle of that measure:

Every person who applies any false trade description to goods (or causes it to be done) shall, subject to the provisions of this Act, and unless he proves that he acted without intent to defraud, be guilty of an offence against this Act.

Every person guilty of an offence against this Act shall be liable

(1) On conviction on indictment to imprisonment, with or without hard labor, for a term not exceeding two years, or to fine, or to both imprisonment and fine.

(2) On summary conviction to imprisonment, with or without hard labor, for a term not exceeding six months, or to a fine not exceeding fifty pounds.

The expression "trade description" means any description, statement, or other indication, direct or indirect.

(a) as to the number, quantity, measure, gauge, or weight of any goods, or

(b) as to the place or country in which any goods were made or produced, or

(c) as to the mode of manufacturing or producing any goods, or

(d) as to the material of which any goods are composed, or

(e) as to any goods being the subject of any existing patent, privilege, or copyright, and the use of any figure, word, or mark which, according to the custom of the trade, is commonly taken to be an indication of any of the above matters, shall be deemed to be a trade description within the meaning of this Act.

BRITISH MARKET FOR WOOL AND COTTON KNIT GOODS

The Boston office of the Bureau of the United States Bureau of Foreign and Domestic Commerce, 752 Oliver Bldg., Boston, has just received from Washington 40 pieces of woolen and cotton knit goods, which are sold in the United Kingdom; hosiery, underwear and other pieces of women's wearing apparel, comprising the exhibit in question. These goods are forwarded by Commercial Attache A. H. Baldwin at London, England, in order that American manufacturers may see the kind of goods which are in demand in the United Kingdom. Accompanying the samples are detailed information with respect to the demand for the goods referred to, prices at which sold, peculiarities of the trade, best methods of entering the market, names and addresses of wholesale and retail dealers handling hosiery and other knit goods in the United Kingdom, etc. The samples referred to may be inspected by business men at 752 Oliver Bldg., where detailed information with respect to the trade in the articles in question may also be obtained. The samples will be held in the office referred to until April 14.

MEETING OF THE SILK ASSOCIATION

The annual meeting of the Silk Association was held in New York on March 24. The following reports of trade conditions were presented:

Raw silk, Paul A. Salembier; sewing silks and twists, Theodore B. Thompson; broad silks, Robert J. F. Schwarzenbach; tie silks, Howell Cheney; fancy silks, H. R. Mallinson; piece dyed silks, James A. Goldsmith; velvets, Frederick E. Kip; ribbons, Isaac Friedenheit; knit goods, Harry A. Taylor; skein silk dyeing, Edward F. L. Lotte, piece dyeing and finishing, H. A. Van Liew; silk machinery, A. W. Buhlmann; commission houses, Conrad Buhler, and conditioning, D. E. Douty.

The election of officers resulted as follows:

Charles Cheney, president; Ramsay Peugnet, secretary; H. Schniewind, Jr., of the Susquehanna Silk Mills, first vice-president; Louis Stearns, of John N. Stearns & Co., second vice-president; M. W. Dippel, of the National Ribbon Co., third vice-president.

Secretary Peugnet presented the following report:

In spite of the extraordinary conditions with which the silk trade has had to cope since the outbreak of the great European war eight months ago, the trade finds itself to-day in a condition much better than many prophesied would be the case, and with a more hopeful outlook for business, which is already gradually growing better.

In France, Lyons and St. Ttienne are not in the area of military operations, which is also true of

the German cities of Crefeld and Elberfeld. Many silk workers are now in the armies of their respective nations, but despite these conditions manufacturing is still carried on, although greatly restricted. Some silk factories are being used in part as hospitals. Switzerland and Italy, even though neutral countries, have suffered greatly because of business conditions having been depressed by the war.

In the United States many lines of export trade have lost much profitable business, but as ours is not an exporting industry we have not had to contend with this situation. Our difficulties have been more internal than external. The problem of nonemployment in some parts of the country, the resultant decrease in buying power and the fear of legislation inimical to business interests, are the underlying causes of our troubles.

The first disturbance of credits, due to the war, has gradually adjusted itself; supplies of raw material have been coming forward in a normal manner; manufacturers have sufficient labor available, and all that is required is the ability of the purchaser to buy the silk goods that fashions demand.

It is unquestionably true that after the outbreak of the war a spirit of economy came over the people generally. Such a gigantic contest and such an appalling loss of life could only have a sobering effect on the whole world and a more far reaching effect on American industries than was first thought possible.

When the war is over and European silk workers have returned to their occupations the one thought in the minds of these nations will be to recover the ground they have lost. To them it will be a necessity to work long hours for small pay. Doubtless our manufacturers will find it most difficult to compete unless their interests are conserved by proper tariff legislation, which means specific duties high enough to give sufficient protection to realize a proper return on their investment.

During the past fall and winter many women gave up their social activities and economized in many ways. This naturally has not had a stimulating effect on the silk business, as women who would ordinarily be quite lavish in expenditures for silk gowns have in most cases reduced their purchases to a minimum, and even in respect to those more staple articles of women's wear, which of late years have been more and more made of silk, the spirit of economy has been manifest.

The ribbon industry, in common with the rest of the silk trade, suffered from the depression due to the European war and uncertainty regarding injudicious legislation. One feature of the new spring styles that has given considerable encouragement to them is the renewed vogue of the high collar for women's gowns, which will undoubtedly stimulate the consumption of ribbons. While millinery styles have not been especially favorable to ribbons yet they have called for a fair amount, and the efforts of our manufacturers to influence styles will not, we believe, be entirely unavailing.

In his report D. E. Douty, of the United States Conditioning and Testing Co., said in part:

A condition in the trade which causes more confusion in the application of tests results than any other one thing is the custom of adding 2 per cent. to the conditioned weight. There is no uniformity in the way it is applied, and it is often used to secure for one party to the contract an unjust advantage. The Silk Association of America has definitely adopted 11 per cent. as the standard allowance of moisture to be added to the bone dry weight of the silk.

The fact that Asiatic silks arrive in this market containing a larger amount than the standard does not justify the practice. Europe handles Asiatic silks on the 11 per cent. standard in the same way as European silks are handled.

Theoretically Americans are accepting more and more the conditioned basis. In reality they are doing their business on a 13.22 per cent. basis.

If Europe does not add 2 per cent. moisture to the conditioned weight of Asiatic silks, why should Americans continue the practice? Perhaps we may enjoy deluding ourselves with the thought that we are obtaining cheaper silk just because the price per pound can be made less on 11 per cent. plus 2 per cent. of moisture than it can on 11 per cent. of moisture.

In order to keep our raw silk up to 13.22 per cent. over dry weight, an abnormal moisture condition for this country, we are compelled to store it in damp, unheated cellar storage.

THE AMERICAN COTTON MANUFACTURERS ASSOCIATION

The 19th annual convention of the American Cotton Manufacturers Association will be held at Memphis, Tenn., on April 13 and 14. Following is the program for the sessions:

Tuesday, April 13.—10 A. M., Call to order, President T. I. Hickman; Prayer, Rev. Henry F. Dugan; Address of welcome, Hon. E. H. Crump, Mayor of Memphis; Reply to address of welcome; Announcements; Annual address, President T. I. Hickman; Address, "Possible Increased Use of Electrical and Pneumatic Forces in Textile Machinery," Frank Nasmith, Editor Textile Recorder, Manchester, England; Address, "Condition of the Present Dyestuff Situation," E. C. Klipstein; Address, "General Business Efficiency in Connection with Cotton Mill Management," J. T. Rose.

8 P. M.—Lecture, "South America" with lantern slides, Charles T. Plunkett.

Wednesday, April 14.—10 A. M. Call to order, President Hickman; Announcements; Address, "Trade Abuses and a Remedy," Kenneth R. Hooker; Address, "Agricultural and Mechanical College Work," President D. H. Hill; Address, "The Development of Export Trade in Cotton Goods," Mercer P. Moseley.

Report of Committees. Textile Bureau, John P. Wood, Director; Textile Alliance, A. M. Patterson, President; National Council, T. I. Hickman, Chairman; Tariff and Legislation, R. M. Miller, Jr., Chairman; Trade Abuses, Caesar Cone, Chair-

man; Duke Warehouse Plan, S. W. Cramer; Importation of Foreign Grown Cotton, J. H. Separk; Foreign Trade Council Meeting, James Maynard.

Report of secretary and treasurer; Report of committee on resolutions; New business; Election of officers.

The entertainment program, with the compliments of the Business Men's Club, Memphis, includes:

April 13, 12.30 P. M.—Special train to Memphis Terminal Corporation Plant, where in addition to seeing that very large and interesting cotton warehouse, a barbecue de lux will be given by the members of the Memphis Cotton Exchange.

April 14, 5 P. M.—Boat ride around Memphis Harbor. Refreshments, music, cabaret.

Wool, Tops and Yarn

The imports of wool, tops and wool yarn for the seven months ending January, 1915, are reported by the Bureau of Foreign and Domestic Commerce as follows:

Clothing and Combing Wool, Free

July, 1914 .....lbs.	13,680,588	$4,720,650
August	11,700,980	3,089,974
September	9,096,205	2,315,488
October	7,543,479	1,844,032
November	2,909,260	629,416
December	962,219	194,810
January, 1915	7,445,517	1,753,210

Carpet Wool, Free

July, 1914 .....lbs.	6,150,565	$1,028,569
August	4,777,641	769,841
September	4,705,674	773,637
October	3,942,256	641,568
November	2,541,724	457,522
December	1,955,252	328,200
January, 1915	4,191,043	604,496

Mohair, 15 per cent, ad. val.

July, 1914 .....lbs.	309,250	$101,930
August	238,490	93,848
September	407,651	141,040
October	470,995	169,545
November	443,466	171,401
December	308,911	115,648
January, 1915	298,906	90,553

Tops, 8 per cent. ad val.

July, 1914 .....lbs.	1,064,988	$578,152
August	369,230	191,774
September	563,477	270,546
October	433,688	192,899
November	193,878	79,848
December	75,468	27,615
January, 1915	105,833	39,174

Yarn, 18 per cent. ad val.

July, 1914 .....lbs.	755,956	$544,974
August	307,825	223,713
September	277,355	186,235
October	374,420	247,750
November	83,234	66,712
December	142,255	97,064
January, 1915	121,463	90,628

THE SPRING MEETING OF THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

The main subject for discussion at this meeting is to be the dyestuff situation. This topic is of such importance to the textile industry, whether actually using dyestuffs or not, that President Duncan and Sec'y Woodbury have made extra efforts to have the present situation fully presented and discussed.

In addition to prepared papers on this subject well-informed men have promised to take active part in the informal discussion. Men prominent in the dyestuff importation business have agreed to attend and discuss the question from their side of the case.

The officers of the Association strongly urge every mill organization to have a representative present to listen to and take part in the informal discussion.

Favorable comment has been heard on all sides of the new plan of establishing headquarters for the Spring meeting at a prominent hotel, and probably no more satisfactory choice could have been made than the Copley Plaza where the business sessions will be held and the members can enjoy the spare hours in social and business intercourse.

The officers feel assured that this will be one of the largest Spring meetings ever held by the Association and strongly urge those who intend to be present to make early reservation of rooms direct with the hotel management.

The banquet on Wednesday evening, April 28th, will be an innovation for the Spring meeting, and speakers of national reputation will be present. Dinner tickets must be engaged in advance from the office of the Association, 45 Milk St., Boston, Mass.

At the Fall meetings members have appeared at the meeting places without hotel reservations and have expected proper room accommodations and banquet seats. This is

asking a great deal of any hotel or of any meeting committee. The Association has to guarantee a certain number of plates and it is understood this year that no more banquet seats will be provided than there are tickets reserved in advance.

On Wednesday morning, April 28th, there will be a business session; Wednesday afternoon is open for social diversion; the dinner will be held Wednesday evening; the Thursday morning session will be devoted to a discussion of concrete construction in its application to cotton mills; lunch Thursday noon in the Grill Room, and Thursday afternoon will be devoted to the dyestuff situation. Papers are expected on the following subjects:

Concrete Construction.
Cotton and Cotton Yarns in the Woolen and Worsted Industries.
Dyestuff Situation in England.
Effect of Cotton Machinery on the Cotton Fiber.
Fire-Resisting Characteristics of Reenforced Concrete Mills.
Foreign Trade Methods in Cotton Goods.
Further Results of Moisture Tests on American Cotton at the Havre Conditioning House.
German Dyestuff Situation.
Insurance Methods for Payment of Large Losses.
Modern Concrete Construction.
Our Textile Industries and Europe's Calamity.
Piece Rate System.
Production of Raw Cotton in China.
Relations Between Humidity and Regains on Wool and Cotton.
Relationship Between a More Productive New England Agriculture and the Dominance of New England Manufacturing.
Revival of the Use of Natural Dyestuffs.
Systematic Purchase and Care of Mill Supplies.
Textiles of the Ancient Cliff Dwellers.
Utilization of Cotton Waste by German and Austrian Methods.

NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS

The program for the eleventh annual convention of this association to be held in the Veteran Corps Room of the First Regiment Armory, Philadelphia, May 3 to 7, has just been announced. On Monday, May 3, there will be no session, the day being devoted to the exhibition. Tuesday, May 4, will be an open session to which all knitting manufacturers are invited. There will be an address of welcome by Mayor Rudolph Blankenburg and addresses by Edward J. Cattell and Congressman J. Hampton Moore. There will also be an address on "Banking and Finance."

On Wednesday morning, May 5, there will be addresses on "Business Getting and Business Building," by Stanley L. Krebs; an address by Lincoln Cromwell, of Wm. Iselin & Co., New York; "Export Possibilities" by Philip Hough. The afternoon session will be devoted to a meeting of the hosiery and underwear manufacturers. Elaborate arrangements have been made for the banquet and smoker to be held Wednesday evening.

The morning session on Thursday will be devoted to the reading of the reports of the secretary, treasurer and different committees. There will be an address by C. C. Parlin, of the Curtis Publishing Co.; C. M. Ripley, on "Heat, Light and Power," and by a Canadian knitting manufacturer.

Friday will be devoted to the exhibition which will close at 10 P. M.

HOSIERY MANUFACTURERS AND DYE STUFFS

A special meeting of the directors and advisory board of the National Association of Hosiery and Underwear Manufacturers was held at Philadelphia on April 2 to confer regarding the threatened dyestuff famine and take measures to meet the crisis. A number of manufacturers stated at the conference that the stock of dyestuffs now in this country would be exhausted in sixty days, and the mills would be compelled to close, throwing hundreds of thousands out of employment. It was finally decided to appoint a committee to make plain to the State Department at Washington the acute crisis in the dyestuff industry at present confronting this country and to urge in the strongest terms that such steps be taken as shall relieve the situation. Charles E. Leippe, of Reading, Pa., president of the association; ex-congressman Herman A. Metz, of the Farbwerke-Hoechst Co., dyestuff importers, New York; and D. F. Waters, of the Germantown (Pa.) Dye works and president of the Master Dyers' Association, were appointed members of this

committee, which was authorized to act in conjunction with individuals, officers and committees of other similar organizations throughout the country.

The committee met Robert Lansing, Counselor of the State Department, and Joseph P. Tumulty, secretary to the President, on April 6. Mr. Metz, of the committee produced letters from over 200 mills in twenty-eight states, indicating that 400,000 of their employes would be thrown out of work unless dyestuffs were obtained. The delegation took issue with Secretary Redfield's statement that a domestic dyestuff industry can be developed within a reasonable time to supply home requirements and quoted Thomas A. Edison to the effect that no immediate relief was to be expected through American production. The delegation asked Counselor Lansing to have the United States Government make an effort to obtain a modification of the British Order in Council so that dyestuffs could be obtained from Germany. Mr. Lansing promised to take the suggestion under consideration. After the regular cabinet meeting Secretary Redfield is reported to have stated that the difficulty of obtaining the material required to prevent a shutdown of our industries was increased by the fact that the German Government was using the basic elements of dyestuffs in the manufacture of explosives. After their conference with the Government officials the delegation called at the German Embassy. Count von Bernstorff, the German Ambassador, is reported as having told them there would be no further trouble about shipment of dyestuffs if they could get the United States to threaten an embargo on exports of war supplies to Great Britain unless interference with trade between America and Germany ceased.

As early as 1787 records show that Great Britain consumed nearly twenty-three million pounds of cotton. A century later more than 1,650,000,000 pounds were consumed in making cotton goods, these being a commercial value of nearly $400,000,000.—"Cotton."

THE EUROPEAN TEXTILE INDUSTRY

RISING PRICES IN THE COTTON TRADE

The "Verband der duetschen Veredelungsanstalten fuer baumwollene Gewebe," Leipzig, has found it necessary to make another advance in the prices for finishing cotton goods, owing, not only to the increased cost of finishing materials, but also to the higher cost resulting from operating only part of the works. The first advance was noted in our March issue. The notice of the latest increase is as follows:

> On January 15 we notified the customers of firms in our Association that a further advance in prices for finishing would soon be necessary. Unfortunately this necessity has arisen sooner than we expected. The prices of all kinds of materials required in the finishing of cotton goods has greatly increased and prices are still advancing. The prices of some of the materials have reached prohibitive levels. Only a few days ago the United Dye Works of Germany announced an advance of 25 per cent. in the price for dyeing, to go into effect at once and without the usual notice. Moreover the other items of cost for finishing cotton goods have increased materially, one of the chief reasons being the reduced production in our works. Under these unsatisfactory conditions we find that the prices now charged for our work do not cover the cost. We are, therefore, forced to make a further advance of 10 per cent. so that our prices after February 15, 1915 will be about 20 per cent. above the ordinary schedule. This 20 per cent. will be added to each bill, including the cost of papering and packing.

The "Zeitschrift fuer dis gesamte Textil-Industrie, Leipzig, reports that the bleaching and finishing works in Austria have also been forced to advance their prices owing to the increased cost of production. The Austrian Association of Bleach and Dye Works have advanced prices 25 per cent. above the regular list of February 15. The Austrian Association of Piece Dyers have announced an increase of one heller (1/5 cent) per meter to take effect on February 1. The Vienna Silk Finishers have advanced their prices from 10 to 20 per cent. to take effect March 1. Similar increases have been announced by the piece dyers, printers and velvet finishers at Warnsdorf.

The "Deutsche Wollen-Gewerbe" states that the order forbidding the sale of blankets, has been rescinded. A reference to this order appeared in the March issue.

NEW CORPORATIONS FORMED

The effect of the war on the German textile industry is shown by the statistics of new corporations formed and increase of capital of old companies in 1914. The "Leipziger Monatschrift fuer Textil-Industrie" gives the following summary of the returns:

It was to be expected that the war would check the development of industrial enterprises, but satisfaction can be taken in the fact that existing establishments have been well employed. An extention of mills was out of the question. The total of new investments in the textile indust during the last quarter of 1914 is very small. Figures for increases in capital stock cannot be given as this capital was not used after being authorized. The amount of capital represented by new companies and by increases in the stock of old corporations for the fourth quarter of a series of years is as follows:

(In units of $100,000)

	1907	1908	1909	1910	1911	1912	1913	1914
New Companies	16.5	13.0	9.8	12.5	6.6	24.4	37.4	.34
Increase of Stock	.2	3.5	14.6	10.2	13.2	1.7	2.3	—
Total new Investments	16.7	16.5	24.4	22.7	19.8	26.1	39.7	—

The effect of the war on the total new investments for the year 1914 is very marked, despite the fact that during the first half of the year the loss was small. The figures for the year are as follows:

(In units of $100,000)

New Companies	88.3	58.4	54.8	92.0	51.8	83.5	97.2	8.6
Increase of Stock	23.8	26.	37.3	31.1	33.1	17.4	38.5	8.7
Total new Investments	112.1	84.4	92.1	123.1	84.9	100.9	135.7	17.3

GUARDING MILL AFFAIRS

The manufacturers and merchants of Germany had the reputation before the war of guarding carefully their mills and business affairs from observation by their competitors. This propensity is likely to be even more highly developed by the war. The "Textil Zeitung," Berlin, has this to say on the subject:

An official notice gives the information that business agents have been sent by England to both Germany and Austria in order to obtain information regarding methods of production, wage conditions and other business secrets and at the same time to endeavor to obtain samples and prices of goods such as have heretofore been exported to various countries. The export trade of Germany and Austria, not only with England, but with all other countries, has been crippled completely. There is no hesitation on the part of any one in making this fact public. In connection with this campaign against German trade, the British Trade Intelligence Department is supporting the publication of a monthly journal whose object is to capture as large a part of the trade of Germany and Austria as possible. Under these circumstances it is necessary to exercise the greatest caution in all communications with foreigners. Under no circumstances should manufacturers allow their mills to be inspected by foreigners, nor should any information be given concerning manufacturing methods, wage conditions, supply of raw materials or markets for goods.

PLAUEN AND CHEMNITZ TRADE WITH THE UNITED STATES

The "Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie" gives the following figures for the export of goods from the Plauen and Chemnitz consular districts to the United States for the years 1913 and 1914:

Total exports from Plauen, 1913.....	$4,989,623
1914.....	4,748,650

The shrinkage of $240,973 in the Plauen exports is remarkably small in view of the interruption of trade by the war during the last five months of the year, and is distributed among the different classes of goods as follows:

Laces and embroideries.....	$216,570 dec.
Embroidery machines	276,890 dec.
Leather gloves	38,690 dec.
Trimmings	63,880 dec.
Cotton netting	17,930 inc.
Brushes	14,270 inc.
Wool clothing	326,090 inc.
Total exports from Chemnitz, 1913....	$10,958,616
1914....	11,175,170
Increase	$216,554

The Chemnitz exports are still more significant. Details of the Chemnitz exports to this country are given for the principal articles as follows:

	1913	1914
Gloves	$2,397,151	$2,815,083
Hosiery	2,443,227	2,425,997

The shortage of benzine, rubber and grain has become so serious in Germany that the members of the "Verband Deutscher Waren —und Kauf-Haueser," the "Verein der Tex-

til-Detaillisten Gross-Berlins" and the "Verein Berliner Kolonialwaren-Haendler",„ the three associations representing the leading merchants of Greater Berlin have posted the following notice in their stores:

In order to economize in the use of oats, benzine and rubber, we ask our customers in the general trade not to order their goods sent to their homes during the war, but to accept delivery when they are purchased.

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YARN NUMBERING AND NATIONAL ILL-WILL

The University, Leeds,
February 22, 1915.

Editor Textile World Record:

Sir:—I notice in your February issue just to hand, under the heading of "German Yarn Numbering" an article from the "Zeitschrift fuer die gesamte Textil-Industrie," of Leipzig, in which there is a reference to the part that English hatred of Germany during the past few years has played in militating against the introduction of the metric system of yarn numbering into this country.

The following statement is made:

"When we see to-day what hatred of Germany has been growing in England for years because Germany has developed into an uncomfortable competitor in industry and trade, it is not surprising that the attempts made in good faith on the German side to unify the numbering of yarn, met with no favorable response."

In reply to this may I definitely state as one of the chief exponents of the metric system in this country on behalf of the Decimal Association, against whom the British Weights and Measures Association and all those in favor of the conservation of the British systems of counting yarns have levied almost every conceivable argument, that I have never once during the past ten years heard of or come across a glimmer of hatred for Germany.

There are certain British people, as there are people of every race, who, on the principle of "flying from ills they know to ills they know not of," always take it for granted that their own people are in the wrong until they are very definitely proved to be in the right. I hope that both the British and Americans of this type will be influenced by this decisive case, in which it is most obvious that Germany has been, and is, so obsessed with her hatred of the British that she unconsciously takes it for granted that the British have thought of her in the same spirit of hatred. Having come across one case of this type, one is disposed to think there may be many others; and now personally, I feel sure from my own definite experience that the supposed British hatred of Germany is but the reflex in the German mind of the German hatred of Britain, of which we Britains have been, perhaps foolishly, to a remarkable extent unaware.

Thank you in anticipation for this correction which I have felt it incumbent upon me to make.

Alfred F. Barker,
Professor of Textile Industries.

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AMERICAN WOOLENS WANTED IN FRANCE

Paris, France, Mar. 19, 1915.

Editor Textile World Record:

All our woolen mills are busy manufacturing army goods and I desire to get into communication with a firm in the United States that can deliver a large quantity of cloth like the sample enclosed, in black and also in blue. I would be obliged if you would put me in communication with some large manufacturers of this class of goods.

Yours very truly,
Louvre.

Woolen manufacturers and selling agents interested in this inquiry are advised to communicate directly with "Louvre" whose address can be obtained in this office. We have a small sample of the cloth at our Boston office and will distribute it on application. We have analyzed it with the following result:

Black Cloth.
Warp, 59 ends, 17s cotton.
Filling, 40 picks, 1.7 runs woolen.
Weight, 17 ozs. per yard, 55 in. wide.
Weave, 4-leaf twill to the left.

The filling is apparently made of fine shoddy. The cloth is felted so that the twill does not show on the face. The sizes given above are for the yarn as it lies in tne cloth without allowance for take-up or loss of weight in weaving and finishing.

AN AMERICAN DYESTUFF INDUSTRY

Editor Textile World Record:

When considering the publicity at present being given to the two new processes, one by Dr. W. F. Rittman, the other by Dr. W. O. Snelling, for producing benzol and toluol from petroleum, it might be well to consider whether the results obtained are new, or whether the war conditions have tended to bring to light things that have been known for some time. Dr. Snelling states he discovered his process five years ago, and that two years ago he took it up with John T. Milliken of St. Louis; also that a year ago he (Dr. S.) took up with Mr. Milliken the proposition of building a plant to extract the benzol and toluol from oil by his process, but that they decided against it then, as not being a money making proposition.

The late Herman Frasch in his address acknowledging the Perkin medal in January, 1912, called attention to the coal tar in California oil. No doubt some of our large oil companies are familiar with the possibilities of these coal tar products, if conditions were such in this country that it would be profitable to build and equip the necessary plant for the business. Up to the present time it has not looked like a profitable undertaking. When one considers the enormous production of oil in California, he may readily realize that the energies of the oil companies in that section have been well taken up with handling this production along known lines, namely, to prepare the paraffine or aliphatics for the production of gasoline, naphtha, kerosene, etc.

Dr. David T. Day, formerly of the U. S. Geological Survey, in an address before the Franklin Institute, Philadelphia, in December, 1913, asking for research work along the lines of petroleum, called attention to the fact that in Roumania the coal tar elements of petroleum were being extracted for further use and the paraffines left for lamp oils. As some of our American oil concerns have branches in Roumania no doubt they are familiar with the process in question and may even be using it in their own plants. No doubt when the specifications of Dr. Rittman's patent are made public many interesting points will come out, and along with Dr. Snelling's patent there may be a general exposition of other patents along the lines of coal tar extraction from petroleum.

During the past thirty or forty years we have lived in a "Dyestuffs from Coal" era from which Germany has greatly profited. Who knows but the future may develop not only a "Dyestuff from Petroleum" era, but may mean the discovery of newer types of dyestuffs made from petroleum, by processes invented and developed in America? To accomplish these results a large organization with enormous financial resources and management of an exceedingly high order would be necessary. Progress.

THE WOOL GOODS MARKET

Extreme quietness is dominating the woolen district. The initial order season has practically passed for most woolen and worsted fabrics. Out of town buyers have completed their selections and have returned to their homes.

The situation in the woolen business is varied. Many mills are assured of a fair business on both worsteds and woolens, while many other manufacturers that have considered their success assured, are chafing under bitter disappointment, caused by excessive cancellations. Business booked in large quantities has been cut down in many cases to a material extent, making it necessary for some manufacturers to put out new lines in order to be assured of the requisite amount of work to keep their machinery employed.

This condition has been brought about by several causes, first of which is probably the urging of salesmen for buyers to place large quantity orders to secure their necessary requirements at the spring prices. With the progress of the season and the constant advancing of prices many buyers began to realize that their unusally large initial orders were to a considerable extent responsible for the apparent shortage of goods and consequent advance of prices. A reaction set in

and extensive cancellations were made, which reduced the net sales on many fabrics to such an extent that it became necessary to get out additional lines. The appearance of new lines convinced buyers of the real situation, and cancellations have continued to come in.

Clothiers argue that the necessity to sell more goods will compel manufacturers to make lower prices. They overlook the fact that prices for wool, dyestuffs and other supplies have advanced since the order prices were made and that it is imperative to obtain present prices to prevent loss in manufacturing. As all supplies are still at advancing prices it is probable that prices for fabrics may be still higher before the season is over. The plunging of buyers was principally on medium and low priced goods for men's clothing, consequently such fabrics are affected most by the present situation. In men's wear the tailors to the trade are about the only buyers now placing orders. Agents report that such orders are slowly coming in, but only in moderate quantities, from the greater number of firms. It is stated that many of that trade carried over considerable quantities of woolens and worsteds which will be resampled for the new season's business and at lower prices than they can be purchased for this season.

The wholesale clothing trade will undoubtedly require many more goods on duplicate orders later in the season, and in all probability they will have to pay higher prices than they agreed to pay for the goods they have cancelled. All the cancellations apparently have not caused a reduction in price in any instance.

The manufacturers of fine goods for the jobbing and merchant tailor trades are not having such free sale for their goods as was anticipated by the practically complete elimination of all importations. They complain of small orders where buyers have formerly given orders for more satisfactory quantities.

Owing to general conditions the fine retail trade did not secure their usual business during the previous heavyweight season, in consequence of which the large dealers carried over substantial quantities of piece goods. On this account their purchases have been curtailed to a considerable extent.

In carded woolen fabrics, overcoatings have been by far the most freely sold and mills showing good lines have been more than usually successful. Fancy backed goods have continued decidedly in favor and coverts have regained their prosperity and prominence on the market. Staple overcoatings have received an increased order business with some of the most favorably known makes being well distributed on first orders.

Woolen suitings have received more favorable consideration than usual and a number of manufacturers are well satisfied with the business they have booked. These goods have been sold quite freely and are naturally getting a large percentage of the cancellations.

Owing to the largely reduced sale for serges some of the serge mills have made lines of fancy worsteds. The result has been that the orders have been so widely scattered that many lines have but a limited number of orders booked, while the most successful lines have not secured what can be called a satisfactory initial business. The high prices for these goods has militated to some extent against their sale.

The dominating feature of the dress goods market has been the extraordinary demand for poplins which set in early in the month. They have been sold freely in large quantities to the jobbing trade and to women's suit manufacturers. Few mills are adapted to their business and consequently those making the goods have secured all the orders they can handle.

Gabardines seem to be occupying second place in sales of dress goods with a satisfactory business being received. Serges which were in disfavor, during the early sales for women's wear, have become more in demand from the women's suit manufacturers. They have been found safer to make up into suits, on account of their being staple. They have recently met with increased sales and some lines are reported to have secured a substantial order business.

Coverts have continued in favor with buyers of dress goods and women's coatings and have proven to be a success. Duplicate orders have come in freely for large quantities of beach or tropical cloths for both women's and men's wear for this spring season. Mills making the goods are running extra time to fill the orders and cannot make deliveries as fast as they are required.

Pencil stripes are in active demand for women's wear for the present spring season, the dress goods departments seem to be entirely sold out of the styles. Men's wear departments having the goods in stock, and no demand from their buyers, are selling them freely to the women's suit trade at full prices.

Army contracts have not been so freely awarded of late. The last to be announced was for 500,000 yards 24-ounce khaki cloth for the British government, which was recently given out. The French government is in the market for a very large quantity of blue mixed uniform cloth. The specifications are such that few or none can meet them. They require a weight of twenty-five ounces with a test strength of 99 pounds on the warp and 87 1/2 pounds on the filling, the test to be made on a sample of nearly 20 inches across by about 6 inches in the warp. They require an extension before breaking of 2.3 inches on the warp and of 3 inches on the filling. There is not a testing machine in the country that can make the test on so large a sample. A fabric to stand the test would be worth $1.75 to $2.00, while it is understood that they expect to secure the goods at a much lower price.

The Italian government has been on the market for half a million yards of uniform cloth in two colors, they ask for 26-ounce goods and require a rather high test for strength. It is possible that this contract may have been recently awarded.

Many mills are still busy on army goods which have kept them in operation, but for which they would have been partly or wholly closed.

The dyestuffs situation has become decidedly the most serious question that confronts our manufacturers. If the blockade can be enforced an exceedingly threatening situation will soon develop, as there is no other than German sources to look to for the requisite quantities to supply our mills.

In consequence of the probable complete cessation of imports of dyestuffs our manufacturers, and those who style the fabrics, are endeavoring to get out lines for the next spring season with styles that will require as little coloring matter as possible. Fortunately that can be done to better advantage on a spring season than on heavy-weight winter fabrics.

A NORTHERN MAN IN THE SOUTH

BY AMAZON

After spending many years as an overseer of bleaching and dyeing in New England mills, I was offered a position as overseer of bleaching and dyeing in a large Southern mill. I came here with some doubts regarding the position, although I had heard some very good reports regarding the people for whom I was going to work. The people of New England have heard much about the long hours and low wages in the South and how much worse the conditions are in the textile mills. Political orators, mill men and social service workers spread these stories until we became firmly convinced that the life of a textile worker in Massachusetts was ideal, and those working in the South were just the reverse. So I came here with some doubts as to what conditions I would find and how I would like the place. After nearly a year here I will give some of my experiences and impression, and also make some comparisons with conditions as I knew them in Massachusetts.

I found that the bleaching and dyehouse was up to date, fitted with the latest and best machinery, the floor was cement, the ceilings painted and high, with plenty of floor room and the whole bleaching and dyeing plant was in very good conditions. Most of the help were negroes and I was somewhat surprised at this as I had been told that colored help were not employed inside the mills. I was informed that in this

vicinity white help would not work in dye-houses and bleacheries. I found that these men were paid just about the same wages as were paid for the same work in Massachusetts, but with this difference, the work here was much easier. After watching the black workers for a year I have yet to see one of them work hard or even hurry. To give a better idea of how they work, they were building an addition to the mill and the weather was cold.

(To be continued.)

THE CHEMIST AND INDUSTRIAL DEVELOPMENT IN THE UNITED STATES

From an Address by Bernhard C. Hesse before the American Chemical Society, at New Orleans, April 2, 1915

Like every other industry, all the branches of chemical industry are dependent for their ultimate success upon economic conditions. They must be able to sell at a price greater than their costs. It is not enough to have the material, the men, and the "know how"; you must have the market as well. However, the attitude of consumers of chemicals in this country has habitually been opposed to the creation in this country of conditions favorable to the manufacture of chemicals.

It is only fair to say that the American chemist and chemical manufacturer has throughout made the most of his opportunities, has made his contribution to the country's need and growth and has taken a fair and proper share in the internal and international business of the United States. The people of the United States, speaking through Congress, have repeatedly told the American chemist and the American chemical manufacturer "so far and no farther will we help you." The chemist and manufacturer have done all that can be accomplished under those circumstances; if they could not attract capital to all the enterprises they desired to found it was for the reason that capital could be more profitably employed otherwise and money has the stubborn habit of going where it can obtain the biggest return—long waits and uncertain results have no attractions for it.

The law makers of the United States know that coal-tar dyes were made almost wholly in Germany; they knew that those dyes were essential to the ordinary growth and conduct of enterprises in this country, not themselves chemical enterprises, but which produced large values of goods annually and employed many people; they knew that attempts had been made for over thirty years to produce those dyes in this country and they knew that they had persistently and deliberately declined to bring about economic conditions which those who were in a position to know told them were essential to the establishment of an independent coal-tar industry in this country; they knew that whatever coal-tar dyes were produced in the United States were produced merely by assembling dye-parts which they knew were imported almost wholly from Germany and which they knew could not be profitably made in the United States; finally they knew that if for any reason whatever these dyes could not be obtained from Germany the production of large values of goods and the employment of many people in this country would be interfered with, and very likely seriously interfered with.

THE EFFECT OF THE EUROPEAN WAR

However, hardly had the European war broken out than our daily press, well knowing what our law makers had deliberately and knowingly done, covered the American chemist and the American chemical manufacturer with an avalanche of harsh and unjust criticism for not doing that which our law makers knowingly and persistently had made impossible.

Broadly considered, the criticisms of the press may be grouped as follows:

1. The present shortage of dyes and inaccessibility of German producers to the American market offers an unusual opportunity for the manufacture of coal-tar dyes in this country.

2. The chemical manufacturers of this country should make those coal-tar dyes.

NO SHORTAGE OF DYES

With regard to the first of these it is very pertinent to ask: "Is there a shortage?" An open-and fair-minded perusal of the textile trade papers, and of the textile sections of daily trade papers from about the middle of August, 1914, to date, leaves the question as to an actual shortage very much open to doubt, with the chances for a negative answer very favorable.

On pages 11 to 13 are selections from a large number of clippings which throw considerable light on that question.

It is only reasonable to believe that such perusal is very likely to result in the following summary of the situation: At the outbreak of the war our cotton mills were loaded up with cotton that cost them from 13 to 15 cents per pound; shortly after the outbreak of the war the price of cotton dropped until it soon reached a level of about 6 cents; buyers of colored cottons insisted upon prices for the manufactured goods based upon the then current prices of cotton; sellers of cotton goods insisted that the shortage of dyes was sufficient warrant for holding out for prices for colored cotton higher than the current prices of cotton would seem to justify; the buyers would not buy and the sellers would not reduce the prices. In the meantime dyestuff shipments which were curtailed in some of the months, increased, and for the year of 1914 the receipts of dyestuffs, i. e., alizarin, etc., dyes, coal-tar dyes, indigo and anilin salts are $633,616 under 1913; that is, the totals for 1913 were $10,065,012 and for 1914, $9,431,396; in other words 1914 was 93.4 per cent. of 1913. In 1912 the corresponding total was $10,386,703; i. e., 1913 was only 96.9 per cent. of 1912 or $321,691 short of 1912. No one complained in 1913 that this shortage as against 1912 was due to the American chemist. The answer, therefore, is that there was not any serious shortage of dyestuffs. With that answer also falls the principal condition upon which the press of this country based its insistent demand for immediate dyestuff manufacture in this country.

THE UNITED STATES MUST BE INDEPENDENT

Collaterally to this supposed dyestuff shortage our press urged that American industries should be independent of Europe for such vital materials as dyestuffs. Probably on some sort of reasoning, such as that employed by Lord Moulton, viz., that one dollar's worth of dyestuffs is necessary to the production of $100 worth of manufactured product. Granting that dyestuffs are really so important and that such an important constituent of a manufactured product should be manufactured in this country, brings us up to a discussion of the second question.

The dividends declared and paid by the German dyestuff factories in 1912 are in the neighborhood of 10 per cent. on the annual turn-over. For the purpose of discussion, let us assume it is 25 per cent. and let us assume that the man who makes this $100's worth of manufactured product makes 10 per cent. or $10 profit on that. The textile maker, therefore makes $10 where the dyestuff maker can make 25 cents, or more likely 10 cents if he can manufacture as cheaply as can the German. The American dyestuff and chemical manufacturer is not and has never been attracted by that possible 25 cents profit. The textile maker is spending that dollar anyhow to somebody; the American dyestuff and chemical maker does not care to make that dollar's worth of commodity. It is of no consequence to him in his business; he is mkaing a living some other way, but the textile maker says it is a matter of life and death to him to get those dyestuffs.

THE DYE USERS MUST MAKE THE DYES

An obvious question at this point is that if the dyes are so vital to the textile makers, and the American dye makers will not make them, why do not the textile makers invest their money in a dyestuff plant and charge up any losses that they may sustain thereby as insurance premium to insure the sale of their goods and the profit therefrom resulting, just as they make their own soap, if need be? There is no ethical nor professional reason against their so investing their money.

Even if the textile maker, under those conditions would just break even, he would still be a gainer; but the American dyestuff and chemical maker would, under those conditions, be a loser, because he would be unable to return dividends to his stockholders, who have the very unfortunate habit of insisting upon dividends. If it cost the textile maker $1.50 to make a dollar's worth of dye, he would be out fifty cents; that is, he would have paid a 5 cent insurance premium to make sure of a 95 cent profit; if the dyestuff and chemical maker were obliged to sell a thing that costs him $1.50 at one dollar, the sheriff would very soon have possession of his property.

Granting therefore, that the stability of our textile and allied industries demand that these materials be produced in this country, it also follows that the financial burden and risk connected with the manufacture of the dyes should fall upon them. To this responsibility I have yet to see from the dye users of this country an adequate or sufficient answer.

If it be the part of wisdom for textile makers not to enter upon the manufacture of dyestuffs in this country, even though dyestuffs are a matter of life and death for them industrially, then where is the wisdom in the chemical manufacturers of this country, who are making satisfactory money in other fields, risking millions of dollars of real money and years of effort and labor in an attempt to make 25 per cent. at the very outside, when it would be money in the pockets of the textile makers to invest their capital in the very same venture and be ahead of the game, even if they lose 50 cents on every dollar's worth of dye produced?

I have no doubt in my own mind the stockholders and the bondholders in our various chemical enterprises would resist any such venture on the part of their respective properties.

Throughout, since the beginning of the war, it seems that the sellers of colored cotton goods have been indulging in the cry of "wolf" many times more than once too often, and the buyers of cotton goods have not believed them; if the buyers of cotton goods, knowing the sellers of cotton goods better than the manufacturers of chemicals do, will not believe those sellers, what reason have the chemical manufacturers to believe the sellers, or, upon representations of those sellers alone, to invest huge sums of money and vast effort in an attempt to help the sellers?

PATRIOTISM AND BUSINESS

One answer that seems to be uppermost is that the chemical manufacturers should have a sufficient sense of patriotism to lose their money, and the money of their stockholders, in order to help out the textile makers. On this point the Journal of Commerce of October 5, 1914, says: "There are some merchants who think motives of patriotism should prevent large purchases of foreign goods at this time, but there is not as much patriotism in business as one likes to hope for and the cold fact of the situation is that constant appeals are made by the holders of foreign merchandise for an opportunity to unload here."

If patriotism will not induce buyers of cotton goods or sellers of cotton goods to pay more for goods made in the United States than for those made elsewhere, then why should patriotism cause the chemical manufacturers of this country to go ahead deliberately with a project in which they are sure to lose money?

WHY AMERICAN DYE-MAKERS CANNOT COMPETE

But the answer to that is, "Sure to lose money, why?" and the answer to that question is a very long story, but it can be summed up as follows: The total world's consumption of coal-tar dyes of all kinds, the year round, and the world over is considerably below $100,000,000; ever since 1879, chemical and dyestuff manufacturers in this country have been attempting to get that business, or a portion of it, away from Germany; not only that,

(Continued on page 171)

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

NOVELTIES IN COTTON FABRICS

BY MANCHESTER

Figs. 1 to 4 show four cotton shirting patterns. These goods are always for the trade and a good steady demand is maintained all round, in fact an extraordinary call has been made on this class of fabrics for the past six months.

FIG. 1

FIG. 3

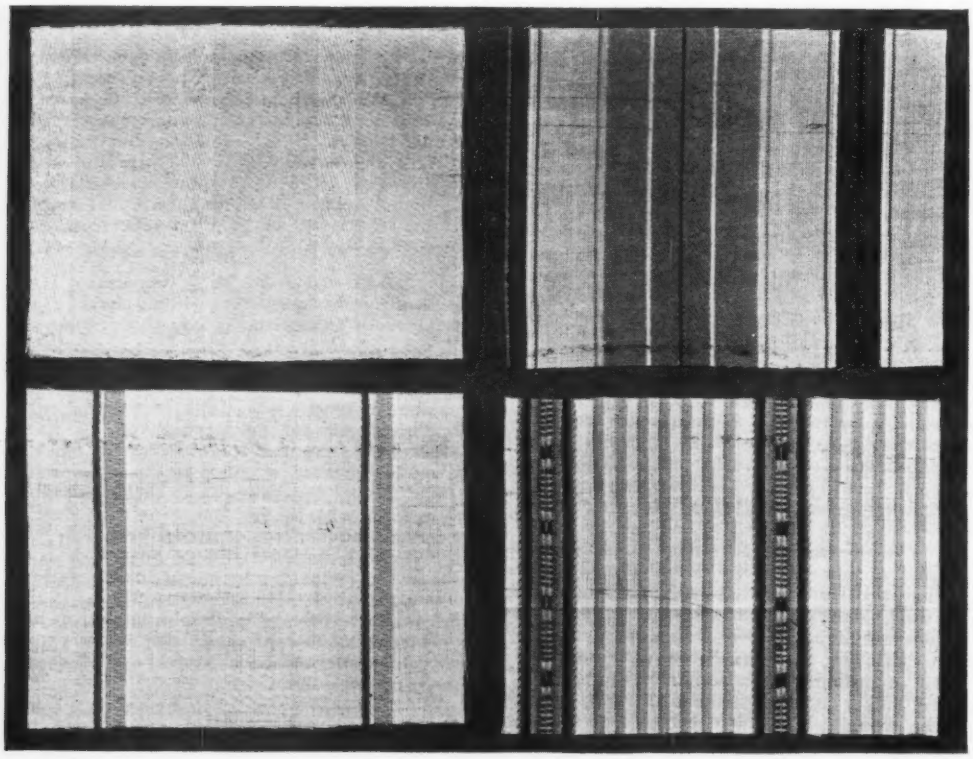


FIG. 2

FIG. 4

Fig. 1 is a shirting pattern which is finding much favor at the present time and makes up into a very smart texture indeed. A neat weft figure is introduced on a crammed warp satin stripe, and the ground is of plain and twill in a diagonal bar setting. There is a large production manufactured for the home trade and also a good amount is shipped to the colonies.

Ends per inch, 76 to 40s American cotton. Picks per inch, 100 of 35s American cotton. 34 inches wide. 100 yards length of cloth (per cut). Slasher, sized. Bleached in the piece. Crammed stripe, 3 ends per dent.

Fig. 5 gives the weave pattern and shows the twill stripe, while Fig. 6 shows the satin stripe.

Fig. 2 is a jacquard figured stripe shirting, the feature of which is seen to be the small spot arranged between a colored stripe pattern composed of blue and sky warp, the latter being broken up to give variation.

Ends per inch, 88. Picks per inch, 104 of 60s cotton. Dress warp.

Warp Yarns

White .....cotton 50s
White cord 2/80s

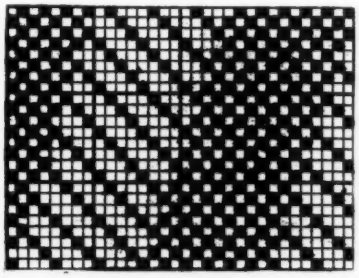


FIG. 5

Dark blue 2/60s
Light blue 2/60s

Warping of Stripe

8 ends .....dark blue
3 ends .....white cord

FIG. 6

1 end .....sky blue, 6 times
1 end .....white, 6 times
3 ends .....white cord

26 ends .....in the stripe

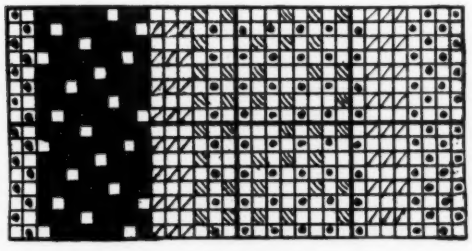


FIG. 7

Fig. 7 shows the stripe weave.

Fig. 3 is a colored stripe shirting of a popular type for the home trade. It is quite simple in character, being composed of satin and the plain weave, while it will be noticed that the satin stripe is dented so as to obtain a full handle and ensure variation thereby, the entire stripe being also added to for effect by the introduction of a white cord as a bordering edge.

(To be continued.)

ENGLISH NOTES

By Our Regular Correspondent

In the earlier months of the war the noticeable feature about shipments of yarns and fabrics to America was the way in which they were maintained despite the general falling off of exports. During the two months, January and February, British textile exports as a whole were lower by 43 per cent. in value than in the equivalent in 1914. The table appended shows how heavily American takings have decreased in point of quantity in certain imported lines. It would be difficult to assign to each factor its separate influence in causing the diminution. Troubles of transportation and exchange are largely affairs of the past and it is necessary to look elsewhere for the reasons. It seems certain that domestic conditions in America are much less buoyant than a year ago. Contracts for shipment have been worked out without being renewed and, in some instances, it would appear that the cessation of buying has been influenced by the rise of prices. In particular cases the want of American orders is felt, but the general preoccupation of plants with army orders limits the degree of disappointment.

Exports U. K. to U. S.
Two months Jan.-Feb.

		1914	1915
Cotton yarn	lbs.	1,203,700	645,400
Cotton piece goods	yds.	13,186,100	8,738,200
Worsted yarn	lbs.	230,900	246,400
Woolen tissues	yds.	1,681,000	813,300
Worsted tissues and stuffs	yds.	6,962,300	5,083,900
Carpets .....sq.	yds.	70,400	116,200
Spun silk yarn	lbs.	125,452	83,093
All-silk broadstuffs	yds.	74,540	30,295
Mixed silk broadstuffs..	yds.	337,861	182,353
Jute yarn	lbs.	511,900	31,500
Jute piece goods	yds.	13,183,700	6,914,200
Linen yarn	lbs.	564,100	363,500
Linen piece goods	yds.	23,926,100	13,947,000

There is no apparent likelihood of the Government's exercising its new powers of factory control over textile mills. It has ob-

tained the right to operate "any factory or workshop" in accordance with the ideas of the Admiralty and Army Council "with a view to increasing the production of war material . . . arms, ammunition, warlike stores and equipment and everything required." Textile manufacturers are now on the top of their work and new British orders come more slowly. Where ordinary methods suffice it is unlikely that extraordinary powers will be put into execution. The new measures are commonly understood to have reference chiefly to engineering and the production of shells.

Orders for textile goods come in abundance from the Allies and the limitless demand creates extreme difficulty over the price of wool and worsted yarn. The price of tops no longer regulates the price of yarn. Spinners' margins are in some cases twice as high as when affairs were at their worst, meaning that where 12 cents was obtained above the price of tops, 24 cents is obtained for spinning today. The private demand for wool goods is not responsible. Makers of fine and fancy worsteds are almost without orders and are standing off from the yarn market. Khaki and its substitutes are the visible cause of the ceaseless advance in crossbreds and knit goods seem to be the most efficient agent in running up the prices of merino yarn. The advances caused some uneasiness, as it is taken for granted that they will continue and that prices at a somewhat distant date will come down with a run. Official action to moderate prices of wool would be welcome in several quarters and the Government has been urged to take business men into its confidence with this end in view. The idea is prevalent that prices could be held down by greater skill in buying and by measures to prevent the holding back of supplies. The difficulty is increased of course by the premium on machinery, but the Government is in control of the military demand and this is what forces the advance.

* * *

The demoralized state of the wool market is a unique feature in the general situation. In the cotton industry there are irregularities as between different sections, but on the whole the improvement is maintained. The Irish crop of flax has come to the relief of the linen trade. Work continues, but the high prices of yarn interfere with new business. Jute spinners have more orders than they want and manufacturers of jute goods are booked forward for three or four months. The changes are therefore not for the worse.

* * *

Consumers of dyes have expressed their willingness to take up $2,000,000 of stock in British Dyes Limited, being two-fifths of the sum initially required. This they have done apparently not because of their perfect contentment with the details of the dyemaking scheme, but to safeguard their own position so far as may be. The time is approaching when the company will have its hand upon the main British supply and probably the main Swiss supply also and users have been given to understand that stockholders will obtain priority in the delivery of dyestuffs. It is possible that under pressure the amount of shares applied for can be increased.

Sir Mark Oldroyd, chairman of British Dyer, Ltd., is head of the large Dewsbury concern bearing his name and manufacturing medium woolens. George Garnett, of Apperley Bridge, a young and enterprising worsted manufacturer is on the directorate with Kenneth Lee, the mainspring of the Tootal Broadhurst Lee Co. of Manchester, Claude Hollins of William Hollins & Co., Ltd., and H. W. Christie of the United Turkey Red Co., Ltd. These are the textile men on the board with whom are G. P. Norton, a distinguished textile accountant; James Falconer, a politician and acute man of business and two nominees of the Government, Sir Frank Forbes Adams, of the great textile export house, W. Graham & Co., and Sir Gilbert Claughton, chairman of the oldest and largest English railroad. The composition of the directorate has excited the fury of scientific chemists, who predict that nothing but disaster can follow from the intervention of men of business in technical affairs of which they know nothing. Doubtless, a place on the board might have been

found for a scientific adviser, but it is not at all clear that men of science have done any more than men of business to develop an English color industry in the past. Certainly there are on the board men who are in the habit of employing the most skilled scientific help in their own businesses and the composition of the company is at least in keeping with its status as a co-operative color supply concern. Two of the directors have paid perhaps more attention to the use of fast dyes than any other two textile manufacturing men in this country and may hence be expected to know something of commercial wants.

Reports which deserve to be received with caution tell of the profits per day that British color manufacturers are making in the present state of the market. The prices of intermediates and reagents are heavily advanced, but the margin is probably excellent and no fault is to be found with the quantities that can be booked. It is, however, questionable whether color is the chemical manufacturer's most profitable line. Prices for explosives are uncommonly good and as makers receive offers equivalent to three and four years' production, the making of picric acid and trinitrotoluene makes a formidable counter-attraction.

* * *

Echoes have been heard in England of some dissatisfaction expressed about the compact between the British Government and the Textile Alliance respecting the export of wool. It is understood that feelings on the subject are mixed and that objection is founded sometimes upon the composition of the Alliance and at others upon the sanction given to restriction in any form. What can be said from this side of the ocean is that the British Governments have a fondness for dealing with such responsible institutions as they can find rather than with isolated individuals. In this country they have arranged to accept the certificate of the Chambers of Commerce about the real nature of goods, the export of which is only conditionally permissible. The constitution of the Chambers varies much with the part of the country in which they are found and so does their moral authority. In the textile manufacturing districts the Chambers are fairly representative of the chief firms of the district and they are predominantly textile in character. In the textile commercial areas like Manchester and Bradford the Chambers are organized by sections—raw material dealers, yarn merchants and spinners, cloth manufacturers, dyers and exporters have each their section, and the Council of the Chamber is representative of the whole. The bodies incorporate all the conflicting interests involved and thus have a more fully representative character than an association simply of dealers or of spinners or manufacturers or exporters standing by itself. Conceivably the Textile Alliance was taken by the British officials to be the nearest available approach to the unofficial representative commercial bodies existing in this country.

* * *

An exhibition of German and Austrian samples collected by the Board of Trade and placed on public view in London and Manchester has received more praise in print than could be heard in private talk and vastly more than the effort can be thought to deserve. The exhibits consisted of very little else than the samples of Sigmund Goldschmidt of Reichenberg & Grottau, which would seem to be a jobbing house. Disposed over about thirty tables and amplified by a few casual samples from such markets as Malta and Sierra Leone, they filled a large room and created an impression of official activity which cannot, however, survive a critical examination. In the majority of cases nothing much but the price could be supposed to matter, but to hardly any samples were prices attached and where there were prices there were no dates, so that the quotations were meaningless. The selection did not in the least represent German and Austrian textiles as a whole and in the proportion of the parts it was frankly absurd. There were of course certain Continental specialties, chiefly of the best known kinds, but the collection had apparently been got together by persons knowing as little of English as of Austrian goods. At

all events their knowledge did not save them from exhibiting remarkably shabby foreign imitations of English goods in which foreign competition has never been a factor to make itself felt; or samples of goods enjoying a quite inconsiderable sale. The exhibits would have been speedily given their right value in Bradford or Huddersfield or Leeds had the authorities seen fit to send the collection into the districts where many of the classes of articles involved are best known.

Among the best executed Austrian samples were a large number of imitation worsteds, duplex printed to imitate weaving and with line stripes in aluminum to simulate silk. The goods were in some cases mercerized and schreinered and there were cheaper printed cotton tweeds made from waste. English experience does not favor the idea that there is a large future for cotton imitations of men's woolens and worsteds. In the long run any advantage in price is more than counterbalanced by the disadvantage in use and after trying all-cotton at different periods in the past fifty years manufacturers have always come back hitherto to wool and its mixtures. The attitude of the largest makers of flannelettes towards the trade in the soft, spongy waste cloths in which the Germans excel is summarized still in the statement, "We would not care to make them." The inference is that the less soft and bulky English goods are regarded as the better trade. Some of these cotton "eider" cloths exhibited in Manchester bore the ticket of Bernhard Teppich, Berlin. A stockinette which may be somewhat of a novelty was represented by a fag end of fabric. The body of the cloth was a net of cotton with a white fur or fluff of wool back and face. The price of 25 cents per yard 54 inches wide, suggests a possible use in trimming the cheapest coats for young children.

* * *

The market in cloth at $25 a yard in narrow width is naturally a somewhat restricted one, yet there are orders to be had for it in America, even in war time. A sample has been seen of a figured plush, of which a New York dealer ordered 90 yards by return mail, with an intimation that something worth $40 a yard would be still more in his line. The production of the fabric in point is about 1 1/2 yards per week per loom. It is woven over wires of three different heights, with a comparatively short silk pile for the yellow ground, a longer pile for the jacquard floral figure in blue and a still longer pile for the over-figure in which the gold and blue are mixed. The business is in essence more akin to picture dealing than to textile industry. The design, which is used only once, stands in the same relative position as the original painting and the yards that are woven correspond with the limited edition of prints taken before the engraved plate is destroyed. Unlike the generality of fabrics such hangings or upholsterings are expected to appreciate in value with age and to graduate for exhibition in museums. Rich as is the effect the casual observer may be excused for not immediately recognizing its expensiveness from samples thrown about carelessly in the manufacturer's own place.

WOOL GROWERS FOUND

The raisers of the high grade of wool that made Mahaska County famous at the Iowa Retail Clothiers' Convention have been discovered. They are the Moore Brothers, C. W., H. G., and J. L. of Cedar neighborhood, and W. L. Gwinn and Mose Votaw of near Fremont. The combined crop last year amounted to 35,000 pounds, about two car loads, and brought a fancy price on the market. The wool is produced by Delaine merino sheep, and is equal to the finest produced in Australia, which in turn is the world's standard. C. W. Moore has for ten years been president of the Iowa Wool Growers' Association and he has advocated the raising of these sheep in Iowa. The high price of land here makes it desirable to raise the best wool, so that the highest price may be obtained for the product. As more of these sheep are being bred, the crop of wool should increase from year to year.—Oskaloosa (Iowa) Herald.

INTERNATIONAL CLASSIFICATION OF RAW SILKS BY ITS DEFECTS

BY WARREN P. SEEM

Winner of the First Prize Awarded by the Silk Association of America

(Continued from March.)

June 1st, 1914

QUALITY REPORT NO. SAMPLE

Lot ..... Sample.....
Bale-Mark ..... Sample.....
Chop ..... Sample.....
Color ..... White even.....
Hand ..... Good.....
Skein ..... Amer. Standard.....
Bales ..... Sample.....
Average size .....14/16.....
Lustre ..... High.....
Gums ..... Free.....
Winding count .....24.....

Evenness

Fine winding 3
Fine cleaning 32
Coarse cleaning 5
Total 40

Cleanliness

Waste 14
Bad-knots 66
2-Threads .....
Nibs .....
Slugs 70
Loops 2
Split-ends 8
Bad-Throws 4
All others 7
Total 171
Quality No. 235
Raw Knots 238
Signed .....

Defects

The following are the defects in raw silk and their technical names:

Fine Threads	Good Raw Knots
Coarse Threads	Bad Raw Knots
Waste	Winder Knots

Two-threads

Slugs	Bouchons
Corkscrew	Vrille
Split Ends	Coste
Loops	Duvet
Bad Throws	Mauvais Lances

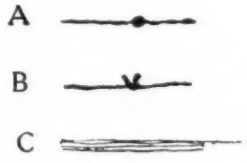
Evenness

The evenness of the silk is represented by fine and coarse threads. In marking down the fine and coarse threads the operator must bear in mind that silk is not a definite diameter like wire, but that a 13/15 denier silk will vary from 13 to 15 deniers. According to Rosenweig the difference between a silk of 13 and 14 deniers is only 0.00008 inch and is hardly discernible with the naked eye; it is possible, however, to see the difference between a 13 and 15 denier and the difference between a 12 and 16 denier is quite noticeable. If it should happen that a thread of 12 deniers should be tied to one of 16 deniers and break down at the knot, one operator might mark down a fine end and the other a coarse end, according to which thread she examined, whereas only the knot should have been entered as neither thread was fine nor coarse enough to cause an irregularity that might be noticed in manufacturing. It is the purpose then of the test to mark up only those fine ends that are fine enough to affect the throwing and manufacturing and cause unevenness that will show.

Fine Threads

Fine threads are invariably accompanied by bad throws, coarse threads, knots, etc.; the reason for it is found in the fact that fine ends are the results of neglect on the part of the reeler who fails to nourish the thread with the necessary cocoons, then when she discovers the thread is running fine, adds several fibres at once which, with the superfluous end, causes an increase of the diameter of the thread to such an extent that they are caught in the cleaner. It appears to be the thread of 7 deniers and under that causes the breaks in throwing, but to show the condition causing corkscrew and use the following method the fine ends have been set at 10 deniers and under on a 14/16 denier silk; on other sizes they run about 5 deniers under the average size.

To determine a fine end proceed as follows: Take the fine thread and make a knot on it as shown at A:



Be sure not to make a knot with two short ends on it as shown at B.

Take this thread with the knot on it and put it in the cleaner at 8 denier; if the knot passes through the 8 denier with a light tension on the thread it is a fine end; if the

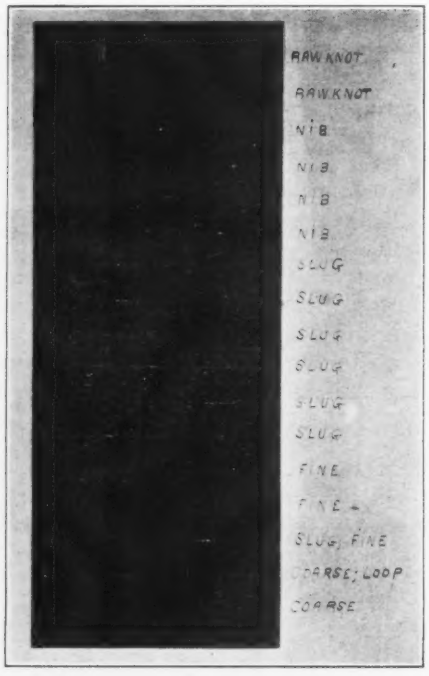


PLATE NO. 1

knot does not pass through under a light tension, then work the thread out on the gauge until it passes through. Those passing through at the same gauge number or under that the silk is tested on, are fine ends; those passing above this are regular threads. Be cautious not to stretch the thread, also do not start at the high denier and work in, as you will find that the knot becomes smaller after it once passes through the gauge. It will not be necessary to do this on all fine ends, only on those in which the tester is in doubt.

Coarse Threads

Coarse threads are made by an excessive number, or double cocoons. Count them only when they are about one-half yard long or longer and the thread is practically clean. A thread may be coarse owing to a number of nibs, slugs and waste that have been run up from the basin or cocoon; in this case mark down a slug or waste, whichever predominates, but do not enter a coarse thread. A coarse thread is only to be entered when it is made by a double cocoon or several more cocoons have been added than required. The rule we use for fine ends to enter both the fine end and defect should not apply to coarse threads, as a fine end is always a defect due to the lack of the necessary cocoons, while a coarse thread may be made that by a great number of defects, thus increasing the size of the thread. The presence of the slugs or waste is in itself a defect and a coarse thread should therefore not be counted.

The tension at 250 thread speed is such that with a double 1 1/4 inch head wood spindle or single 1 1/4 inch head iron spindle a thread 8 deniers coarse either breaks down at a coarse end or holds back the take-up bobbin. When the thread holds back the take-up bobbin it is to be counted the same as a break.

To prove the reliability of the evenness test the following tests were run:

I took the sizing skeins coming in two bales of China on a "Rose Chop Extra" and the other a "Gold Crown Chop No. 2." The sizing ran quite uniform on the "Extra" and in summing up the skeins below the average showed 4.1 per cent. unevenness, those above the average 3.6 per cent. unevenness, or a total unevenness of 7.7 per cent. The cleaning test showed one fine end of about

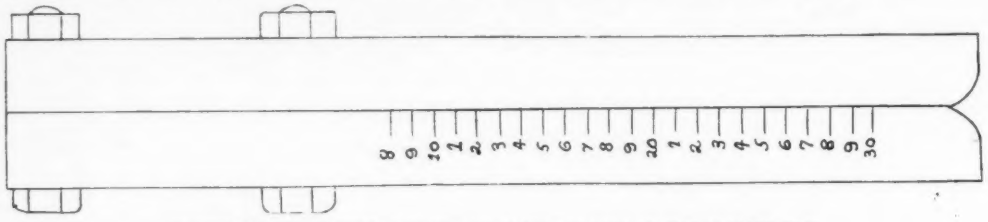


DIAGRAM SHOWING SPECIAL GAUGES OR CLEANERS USED IN THE QUALITY TEST

7 deniers, this on 300,000 yards would show an unevenness of 22.

The No. 2 sizing skein showed 12.86 per cent. total unevenness above and below the average or just 5 per cent. greater than the "Extra."

The quality test showed 9 fine ends, which on 300,000 yards would make 207. You will notice from these results that by sizing skeins the difference is but 5 per cent., while with the cleaning test it is 940 per cent., which, judging from the great variation of

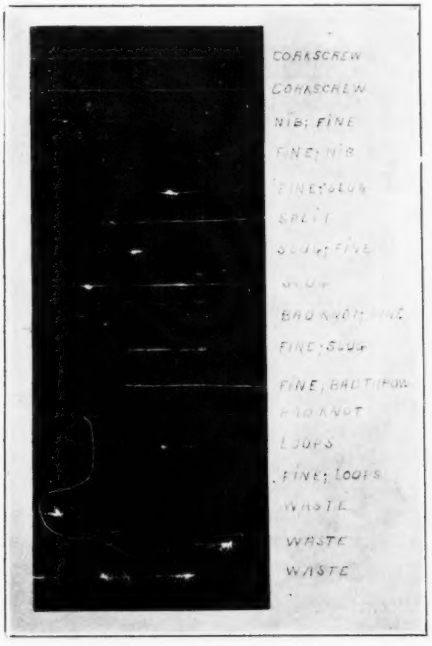


PLATE NO. 2

the No. 2 on China showed a far more true condition.

The evenness test shows a ratio of one fine thread to 2 1/2 coarse threads, which causes a corkscrew on a doubled thread. When the ratio is 1 to 3, as frequently happens when the coarse threads are numerous, the corkscrew is quite marked.

The evenness is to be classified as follows:

Fine and Coarse Threads	Grade	Classification
0 to 30	Double Extra	Very Good
30 to 40	Extra	Good
40 to 50	Good No. 1 to Extra	Good
50 to 70	Good No. 1	Fair
70 to 110	No. 1	Only Fair
110 to 150	No. 1 to 1 1/2	Poor
150 to 200	No. 1 1/2 to 2	Very Poor
200 to 250	No. 2	Very Poor

Cleanness.

The uncleanness of silk is represented by the following defects: bad knots, waste, two-threads, nibs, slugs, loops, split ends, bad throws, twisted on ends and corkscrew, and shown on the following plates which were

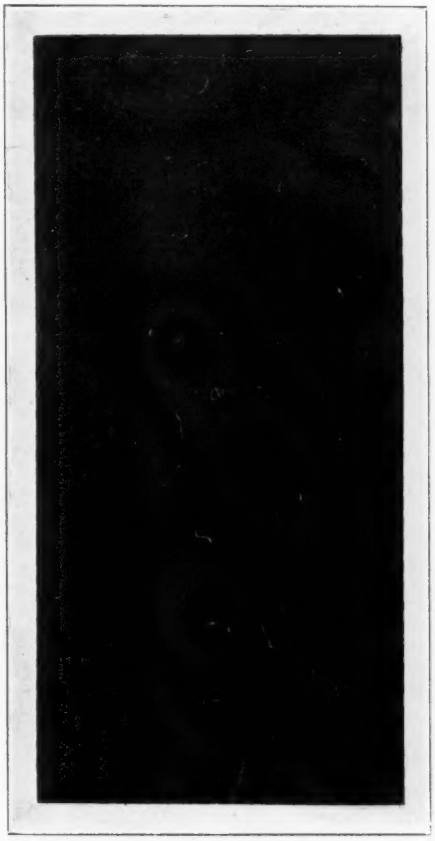


PLATE NO. 3

carefully selected and represent the different kinds of each defect found in Japanese, Chinese and Italian Raw Silks. They represent the actual size.

Plate No. 1

The defects shown on Plate No. 1 represent the size of those found in a Grand

Double Extra Silk. The number found in 300,000 yards is about as follows:

Raw Knots	300 to 450
Nibs	30 and under
Slugs	30 and under
Fine	20 and under
Coarse	5 and under
Loops	5 and under

PLATE NO. 4

These increase gradually in size and number to those shown on Plate No. 2.

Plate No. 2

The defects shown on Plate No. 2 represent the size of those found in a 1 to 1 1/2 Japanese Raw Silk. The number found in 300,000 yards is about as follows:

Corkscrew	50 to 80
Nibs	200 to 400
Slugs	400 to 600
Bad Knots	100 to 150
Fine Threads	80 to 175
Bad Throws	100 to 200
Loops	50 to 60
Waste	100 to 150
Split Threads	30 to 50
Coarse Threads	100 to 125

The defects increase in size as they increase in number. On grades under Extra about 40 per cent. of the defects are large. The fine threads also are finer as they increase in number.

Plate No. 3—Small Raw Knots

A commercially perfect skein of silk we will consider as one of continuous length knotted together by short knots, 1/8 inch or shorter. Small raw knots are therefore no defect, but a means to a perfect thread and should therefore not be included in the quality number; they should, however, be noted on the quality report as sometimes silk of low grades is re-reeled carefully and raised several grades. It will also serve as a guide in a technical inspection and comparison with Italian and Chinese Silks which are not re-reeled. On Italian Silks they run from 10 to 100. On Japanese Silks they run from 100 to 700.

Plate No. 4—Bad Knots

A bad knot is known by the ends being glued together, as shown, and causes trouble in throwing and manufacturing and must therefore be counted as a defect. They, however, are not always glued together, as sometimes they are made when re-reeling the skeins dry. These knots make constant trouble and about 40 per cent. break out in throwing. They run about as follows on the following grades of silk:

Double Grand Extra	0
Double Extra	3 to 10
Extra	10 to 20
Best No. 1 to Extra	20 to 30
Best No. 1	30 to 40
1	40 to 100
1 to 1 1/2	100 to 150

The larger ones being found mostly in the lower grades of raw.

(To be continued)

Woolen clothing was exported from the United States to the value of $4,676,424 last year, compared with $2,297,171 in 1913.

THE MEASURING OF TEXTILE FABRICS

From an Address by Edwin H. Marble, of the Curtis & Marble Machine Co., Before the Massachusetts Sealers of Weights and Measures, Worcester, Mass.

In the study of the measuring of textile fabrics three points must be considered: First, the unit of measurement; second, the materials to be measured, and third, the application of the material to the standard.

The accepted unit of measurement in the textile industry is the old Saxon yard. From the royal decree of about 950 A. D. which declares that "three barley corns, placed end to end, round and dry, taken from the middle of the ear, shall be the measure of an inch," and the well known, though equally old Saxon couplet, "three barley corns make an inch, twelve inches make one foot, three feet make a yard," to the installation at the Bureau of Standards in Washington of a prototype or copy of the International standard yard or bar, is a long step. From the rather inaccurate yew stick of Saxon times to the test bar, correct to the infinitesitesimal fraction of an inch, is a still longer step toward scientific precision.

Without going into the history of this unit, let me say that with all the efforts that have been made to force the metric system upon the textile industry of this as well as other countries, the old Saxon yard still retains its place. France, which originated metric measurements, violates the law with every twirl of the spindle and with every beat of the loom. Yarn is still counted on the basis of 840 yards to the hank and cloth, at so many threads or picks to the quarter inch. Even the meter when used to designate length, is in most cases followed by its English equivalent. A piece of French silk which was recently sent to me, had every weight or measurement expressed in English units, while a German uniform cloth had first the yards and ounces, then the metric equivalents. Besides France and Germany, the Orient, China in particular, and a large part of South America, have accepted our English yard as the unit of measurement.

THE MATERIAL TO BE MEASURED

The material we are to examine is an assembled organization of threads, each made up of a number of fibers taken either from the animal or from the vegetable kingdom. Wool and silk are the most important representatives of the first, while cotton and linen are our representatives of the second. These fibers are very minute in themselves, some being as small as 1/2000 of an inch in diameter, and each fibre possessed of certain properties that allow a great variation in weight, diameter and length. All these fibres are affected and changed by moisture; changes which are quite readily measured in the fiber or yarn are not so easily determined when the yarns are assembled in the form of cloth. Taking cotton as an example, from the tables prepared by the Bureau of Standards, we read these facts:

4. With small changes in the relative humidity of the atmosphere, such as from 45 per cent. to 85 per cent., the size of a 36/1 yarn may vary as much as two counts, and an 80/1 yarn over four counts; or, in other words, 5.5 per cent. in each case. The two-ply yarns are not as susceptible to changes due to humidity in the atmosphere, although they vary from one-half a count on 10/2 yarn to almost five counts on 96/2 yarn, with an average of 4.5 per cent. on all sizes. Greater differences in relative humidity are common in this country than those used in this work, and if the extremes were employed, much greater variation in yarn count would have been obtained.

5. Under the conditions outlined in No. 4, the yardage in one-ply yarns (singles) can be increased or decreased from 1,700 to 3,700 yards per pound, or 5.5 per cent., according to size of the yarn. The two-ply yarns can be changed in yardage by the humidity of the atmosphere, the difference in length ranging between 250 to 2,000 yards per pound, or about 4.5 per cent.

The regain of moisture in wool fiber has also been determined with reasonable accuracy, but the wool fabric is still a rather uncertain structure, although a little more study has been given to it than to the cotton fabric. The whole subject is being investigated by students, and some definite results may be published in a few months. The cotton fabric may be found in every conceivable combination of yarns, canvas and gauze, sheeting and prints, napped faces and calendered finish. This with the wool, linen and silk fabrics are all easily affected by climatic conditions and can only under ideal conditions and by expert operators, which means an equipment and a conditioning room more elaborate than the ordinary mill would deem necessary.

Let us now examine the third consideration, the application of our unit of measurement to these fabrics represented by our samples. There are three common methods in use in the textile industry. (1) With a drum or cylinder of a given circumference over which the fabric is passed, or which is passed over the fabric, each revolution of the drum being recorded; (2) By a folding machine which lays or plaits the fabric in folds of a definite length; (3) By a measuring table of a given length over which the fabric is drawn.

With all these devices there must be some method of applying a uniform tension, and the fabrics must be presented in a smooth, even condition, devoid of wrinkles or creases.

The first demonstration is with a measuring drum one yard in circumference. Over this drum, which had been carefully tested and proved to be 36 inches in circumference, we will run fabrics varying in weight and construction over the drum and then measure them on the table. The machine and table indicate the same length for the light firm fabric which adheres closely to the drum. When heavier cloths are measured there is a variation between the length indicated by the drum and that obtained on the table, this variation increasing with any increase in the weight and thickness of the fabric. In measuring a heavy carpet there was a difference of 3 1/2 inches in five yards. To overcome this variation in the measurement between the drum and the table, recourse is had to two different methods of adjustment. The first consists in keeping the drum a uniform size, and using an adjustable indicating device, which varies the indicated number of revolutions on the dial. This was accomplished by means of two pulleys connected by a belt. One of these pulleys is adjustable and can be increased or decreased in diameter to suit the fabric to be measured. When these pulleys are of the same circumference, the dial indicates the exact number of revolutions of the drum. Increasing the circumference of the expansion pulley by 1/4 inch increases the indicated measurement by 1/100. If the measurement upon the table proves to be 1 per cent. longer than that upon the drum, the indicated measurement is made 101 instead of 100 upon the dial. The other devices are expansion drums which can be varied in circumference, and expansion tapes which indicate the variation.

Different fabrics run under the same tension over the same drum are found to give different lengths, as the fabric stretches when under tension. I will measure two pieces of a light weight fabric, only enough tension being applied to the first to draw the piece through the machine, while to the second considerably more tension is applied. A considerable variation in length is noted. When a similar test is applied to a much heavier fabric the difference in the two measurements is very small. Similar tests with woolen goods are now made upon a measuring device similar to that usually found in the weave room of a woolen mill, and the different measurements compared.

After these tests over a drum the demonstrations are continued with a yarding or folding machine. This machine has been carefully set to deliver exactly 36 inches at each throw of the blades and a string of several different fabrics are run at a uniform tension. The results are very irregular, the folds varying from 36 inches to 35 5/8 inches in length, the difference in the elasticity of the different fabrics causing a retraction in the fold after it had been laid. Adjustments in tension and length of throw of the blade are made so that each fabric when laid upon the table shows a fold 36 inches.

Fabrics which have been folded three weeks prior to this convention are shown. These fabrics have been carefully measured and ticketed at the time of folding and then placed in the storehouse of one of the department stores of Worcester. When compared with the original indicated length several of them are found to have varied to quite an extent. Flannels folded 36 1/2 inches are found to be 36 1/8 inches. Bleached whites folded 36 1/8 inches are barely a yard wide, while some of the heavy unbleached cloths have increased in length.

All of these fabrics show an increase in weight of from 2 to 3 1/2 per cent.

In demonstrating the different measurements the fabrics are first passed over the drum and the length thus produced indicated by brass markers. This same fabric is now placed on a fifteen foot table and the certified steel tape used to compare the length indicated. No attempt is made to produce an exact tension on this table. The judgment of the demonstrator alone determines what would be considered sufficient. This, while subject to some error, is accurate enough to give fairly good results. Were the tests to be made under standard conditions of humidity and temperature, with a weighted tension that could be accurately adjusted to each weight of fabric, the results would have been much more accurate, but the object is not so much to get absolute results, but rather to give a method of determining length.

You ask me to sum up the best deduction possible from these demonstrations and from several other experiments. The question is, "When is a yard a yard?" Not alone when a fabric is measured by a certified tape or yard stick without consideration of tension, stretch or retraction. Not when a fabric is measured after being exposed to varying atmospheric conditions, which are beyond the control of the manufacturer. A yard may rightly be deemed a yard when a specific length, preferably five yards of the fabric, is subjected to a remeasurement twenty-four hours later upon a flat table under a tension not less than two and one-half times nor more than three times the weight of the length of the fabric taken, and the length be found to agree with the first measurement.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

This Series began in July, 1911
(Translated and Revised by Samuel S. Dale.)

Color Effects with the Basket Weave

All the color effects with a plain weave, Figs. 1688 to 1705, can be obtained with a basket or panama weave by substituting for each single thread as many threads of one color as there are threads working together in the weave

A variety of other color effects can be obtained by so arranging the color pattern that each color is brought into both squares of the basket. Several examples are shown at Figs. 1742 to 1749.

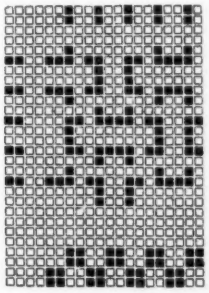


FIG. 1742

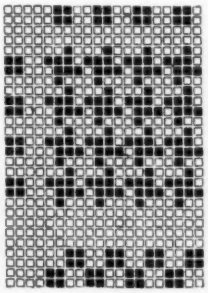


FIG. 1743

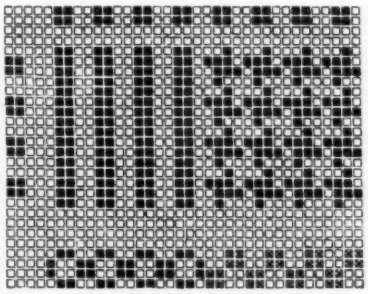


FIG. 1744

The basket weave gives many attractive color effects when the weave is so changed that the dark threads work together in certain places while in other places they are divided, a part being raised when others are lowered. Two patterns are shown at Figs. 1744 and 1745. Larger patterns can be obtained from a motif and with the corresponding arrangement of the weave.

Figs. 1746 and 1747 show the method of arranging the weave to produce a combination of longitudinal and horizontal stripes.

Still another class of color effects with a 2 up 2 down basket is illustrated at Fig. 1748. The weave is rearranged in three different ways, producing longitudinal and cross

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stripes with a mixed effect. The warp and filling pattern for Figs. 1743 to 1748 must be 1 light 2 dark 1 light.

the pattern is begun in the same way in both warp and filling, 6 light 6 dark, the color effect shown at Fig. 1758 will be obtained.

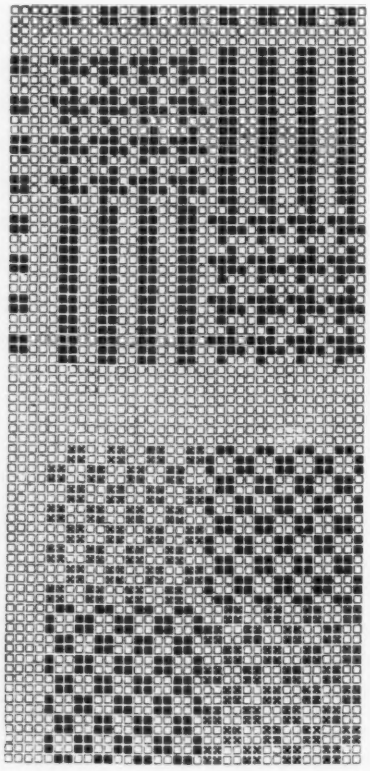


FIG. 1745

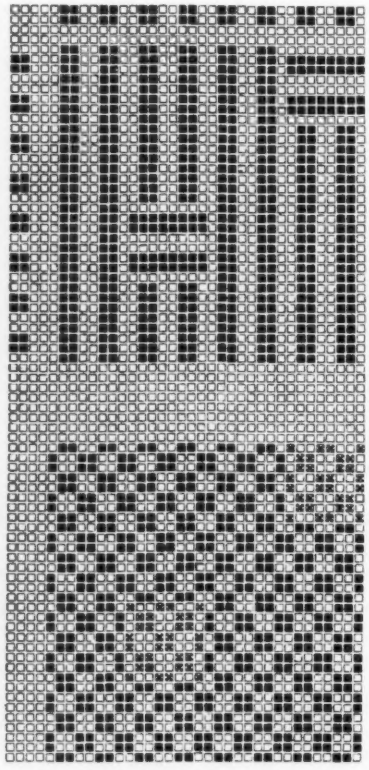


FIG. 1746

Another kind of color effect on a basket weave is shown at Fig. 1749, in which the warp and filling pattern is 4 light 2 dark, the weave being changed at intervals alternately to unite and separate the two dark threads in the shed.

Color on Crepe and Similar Weaves

Crepe and fancy weaves offer a wide field for color effects. The most varied forms can be produced with these weaves by a suitable arrangement of the different colors. Examples are shown at Figs. 1750 to 1873.

Fig. 1754 shows a square effect obtained with a 4 dark 4 light pattern in warp and filling.

The design shown at Fig. 1756 is made on the weave at Fig. 1757 with 6 light 6 dark in the warp, and 6 dark 6 light in the filling. If

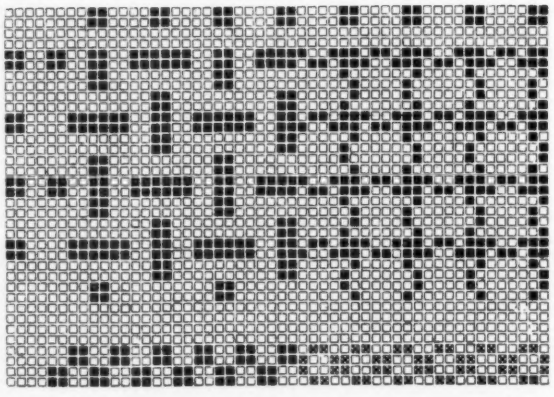


FIG. 1749

The patterns shown at Figs. 1787, 1789 and 1793 give the effect of having the threads woven in a diagonal direction.

FIG. 1750

FIG. 1752

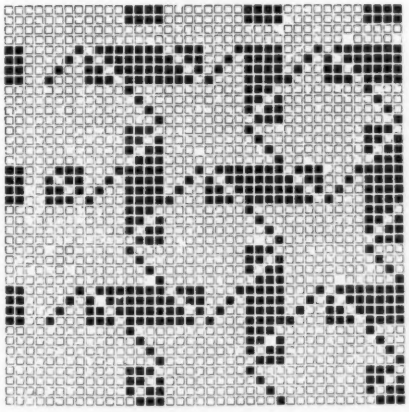


FIG. 1751

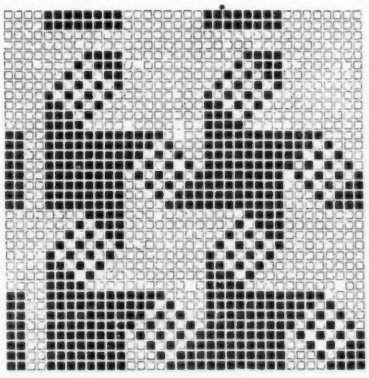
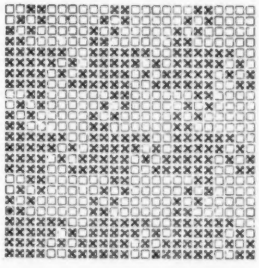
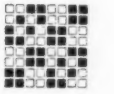
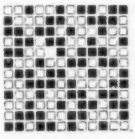


FIG. 1753

FIG. 1755







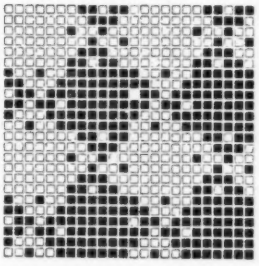
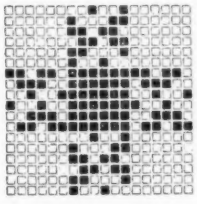


FIG. 1754

FIG. 1757

FIG. 1756



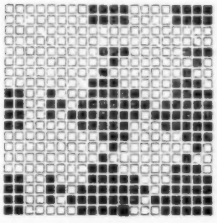
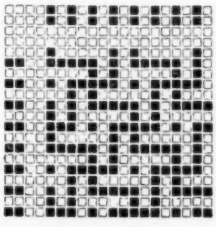


FIG. 1758

FIG. 1759

FIG. 1760

FIG. 1762



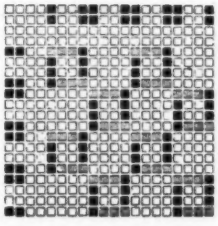


FIG. 1761

FIG. 1764

FIG. 1763

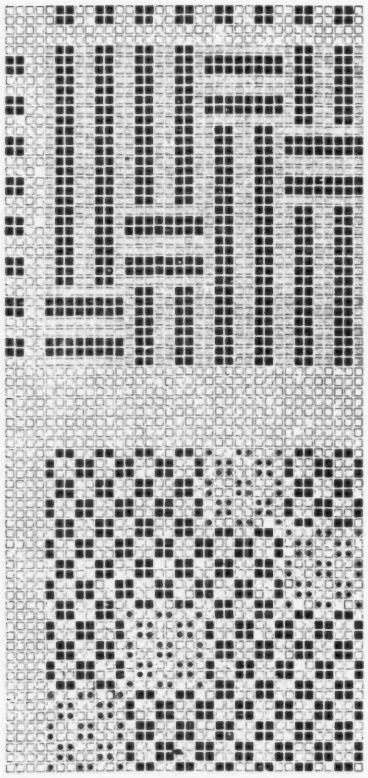


FIG. 1747

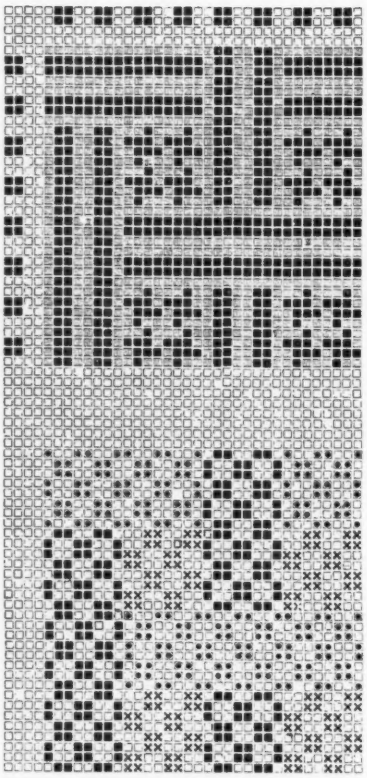


FIG. 1748

FIG. 1766

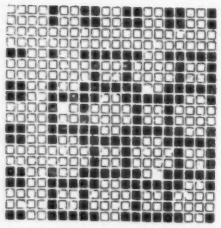


FIG. 1765

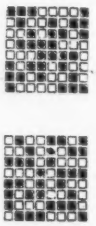


FIG. 1768

FIG. 1786

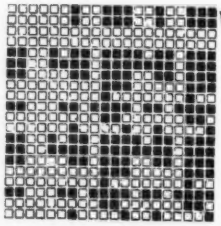


FIG. 1767

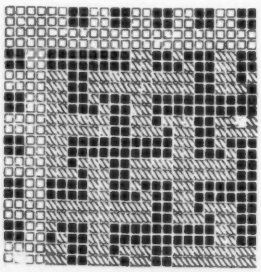


FIG. 1785

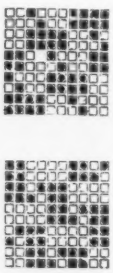


FIG. 1788

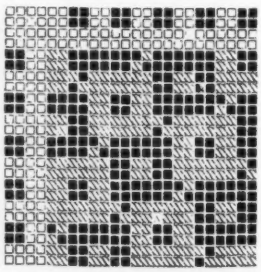


FIG 1787

FIG. 1770

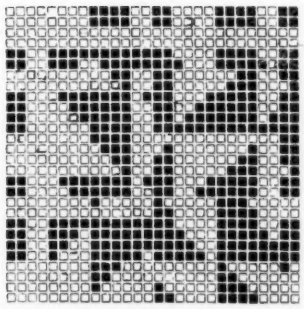


FIG. 1769

FIG. 1772

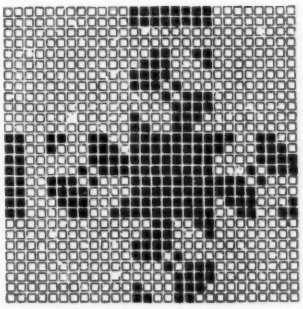


FIG. 1771

FIG. 1774

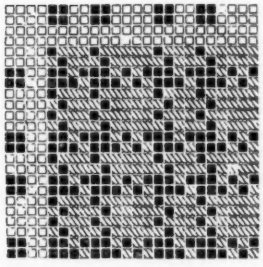


FIG. 1773

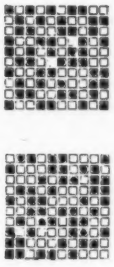


FIG. 1776

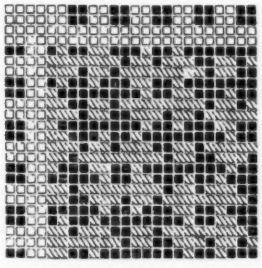


FIG. 1775

FIG. 1778

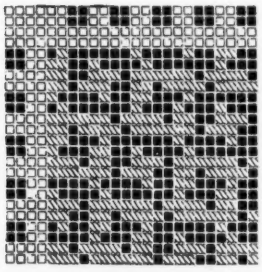


FIG. 1777

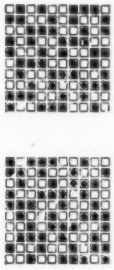


FIG. 1780

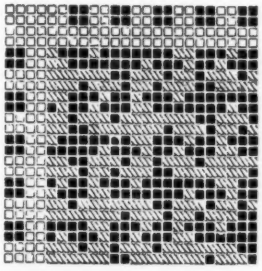
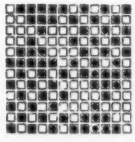


FIG. 1779

FIG. 1782



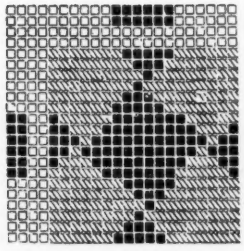


FIG 1781

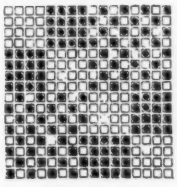


FIG. 1784

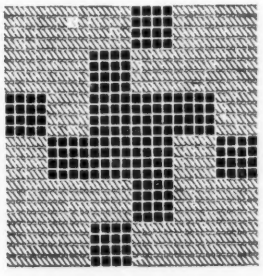


FIG. 1783

ESTIMATING THE COST OF WOOLEN GOODS

(Continued from March.)

They should be compiled monthly; these monthly reports will prove invaluable to the manager of a mill, showing him at a glance whether the department is doing its work at a greater or less cost than in former months, and indicating the effect of any change of machinery, help or methods. A form for such a monthly statement will be found at Fig. 1.

Each department has its own unit of production, such as the pound of stock for the dye house, the run of 1,600 yards of yarn for carding and spinning, the yarn for weaving, etc. The average cost for each department is found by dividing the total cost by the production.

Monthly Statement of a 12-set Mill on Dress Goods 36" wide 36 picks

Dept.	Product	Labor	Expense	Average Labor	Average Expense
Sorting	74,765 lbs	299.06		.004	
Scouring	29.906 "	101.68		.0034	
Coloring	29.906 "	221.30	852.32	.0074	.0285
Picking	29,906 "	59.81	86.73	.002	.0029
Carding	148.500 lbs	519.75	133.65	.0035	.0009
Spinning	148.500 "	772.20	29.70	.0052	.0002
Spool & Draw	6.187 doz	346.50	18.61	.056	.002
Weave. Day.	74.250 yds	534.60	51.98	.0072	.0007
Weave. Piece	74.250 "	1752.30		.0236	
Finishing	74.250 "	816.75	185.62	.011	.0025
Repairs	74.250 "	155.92	51.98	.0021	.0007
Ins & Taxes	74.250 "		371.25		.005
Fuel	74.250 "	80.19	348.98	.001	.0047
Freight etc	74.250 "		133.65		.0018
General	74.250 "	482.62	155.92	.0065	.0021
		6142.68	2415.39		

Dividing the labor cost ($6142.68) by the yardage for the month (74.250 yds) gives us .08 27/100, the average labor cost per yard. Dividing the expense cost ($2415.39) by the yardage (74.250) gives .03 25/100 as the average expense cost per yard — the total for labor and expense being 11 52/100 cents per yard.

FIG. 1

The fixed charges, such as fuel, freight, insurance, taxes, etc., must necessarily be averaged on some arbitrary plan. The department of the mill with the lowest capacity of production measures the production of

that mill, and accordingly the production of that department is used as a basis for calculating the average of the fixed charges. As yarn can be and generally is, purchased to keep the looms running full, the weaving department in most cases serves well for this purpose. The goods usually vary widely in the number of picks per inch and consequently in yards produced and this weaving product must, consequently, be reduced to an equivalent yardage with a constant number of picks per inch. Let us for illustration measures 45 yards finished may require 200 pounds of wool to be sorted, 70 pounds of clean wool to be colored, 100 pounds of stock to be picked, 250 runs of yarn to be spun, 55 yards of warp to be dressed, and 50 yards of cloth to be woven and finished. Each of these items is extended at the average cost of the process, fixed charges being calculated per woven yard of 50 picks per inch. The total of these items divided by 45 (yards of finished cloth per cut) will give the estimated cost per finished yard for labor

Monthly Statement of Fixed Charges of a 12-set woolen mill on Dress Goods 36" wide, 36 picks

74250 yds 36-inch goods, 36 picks = 26730 yds. 54, 50 picks

Dept.	Product	Labor	Expense	Average per yd. 50 picks Labor	Expense
Weaving	26730 yds	534.60	51.98	.02	.002
Repairs	"	155.92	51.98	.006	.002
Int. + Taxes	"		371.25		.014
Fuel	"	80.19	348.98	.003	.013
Freight	"		133.65		.005
General	"	482.62	156.92	.018	.006
		1253.33	1113.76	.047	.042

FIG. 2

take 50 picks as a basis, with a product in a given month of 10,000 yards, averaging 40 picks per inch. The equivalent of this product in 50-pick goods would be 8,000 yards. If in another month the product should be 5,000 yards, averaging 80 picks per inch, the equivalent would again be 8,000 yards of 50-pick work. This reduction of the yardage makes the report much more valuable for comparing the operations of the mill during different periods.

When estimating the cost of any particular grade, we must figure the cost of each process through which the fabric passes. A good method consists in calculating the quantity of material which must pass through each of the necessary processes to produce one cut of the goods. For example, we find that a cut of cloth which and expense. If the cloth is made with a greater or less number of picks than 50, the average used for fixed charges is increased or diminished in corresponding proportion.

There is but one proof of the accuracy of any cost estimate. When an inventory is taken and mill accounts closed, the yardage of the various fabrics manufactured during the period should be extended at their estimated cost, and the total compared with the actual cost as shown by the statement of profit and loss.

Fig. 2 is a statement of the cost for fixed charges as indicated by Fig. 1, but reduced to a basis of 50 picks. The actual monthly production was 74,250 yards, 36 inches wide, 36 picks. As the goods were woven two widths in the loom the yardage was one-half this amount, or 37,125 yards, 36 picks per

inch. Assuming these looms to have been operated with the same efficiency on a cloth having 50 instead of 36 picks per inch, a proportionately less yardage would result. A simple calculation gives 26,730 yards of 50-pick goods as the equivalent. As already explained, this reduction is made for the purpose of having a standard of production by which to calculate the average cost per yard of the so-called fixed charges, and by which to compare the product of different months. One yard of goods containing 50 picks per inch is the standard by which the work of the mill is measured and the efficiency of its operation determined.

Two important items of cost, interest and depreciation, do not appear in our statement, and have been omitted because they vary so widely among different mills. Care should be taken to allow for them in estimating the cost of goods

Fig. 3 illustrates the method of estimating the cost of a particular fabric. This estimate was based upon the averages obtained from Figs. 1 and 2. The different items of cost are first placed in the left-hand column; in the next column appears opposite each item the material or work required for one cut. In the next two columns are the cost of averages for labor and expense. The total cost per cut for each process is then extended and placed in the columns at the right. These items are then added and the totals taken as the estimated cost of labor and expense per cut.

The average cost per yard is found by dividing the total cost of raw stock, labor and expense by the finished yards per cut. These three items are in turn added and the result is the estimated mill cost of the fabric per yard.

Cost Estimate of Woolen Cassimere.

15½ oz. per yd 4/4

2500 ends, 36 reed; 68" wide in loom, 50 pks. 36 firm

Stock shrinks 15% from clear wool to yarn

15% " yarn to finished goods.

21 7/10 oz. stock required for said, 424 lb; .562 cost of stock

	Required per cut	Manufacturing Labor	Manufacturing Expense	Cost per cut Labor	Cost per cut Expense
Sorting	156 lbs	.004		.62	
Scouring	63 "	.0034		.21	
Coloring	63 "	.007	03	.44	1.89
Picking	63 "	.002	.003	.13	.19
Card. + Spin.	221 "	01	001	2.21	.22
Spool. + Dress	7 sets	.056		.39	
Weaving Pc.	50 yds	.089		4.45	
Finishing	47 "	.036	.023	1.69	1.08
Fixed	50 "	049	.042	2.35	2.10
				12.49	5.48

12.49 / 47 yds — Cost Stock per yd .562

" Labor . . .266

Expense . . .116

5.48 / 47 — Mill cost per 4/4 yd .944

FIG. 3

THE NETHERLANDS FLAX CROP

BY CHARLES RICHARDS DODGE

According to an estimate made by a leading flax dealer of Rotterdam and submitted through Consul General Listoe, the Netherlands produced the past season a total of approximately 3,100 tons of fiber as follows: Blue Dutch, 1,500 tons; white Dutch, 800 tons, and Friesland (imitation Courtrai retting), 600 tons. The previous season's crop amounted to 2,800 tons, of which 1,600 tons were blue and white Dutch, and the remainder Friesland. As the crops of 1911 and 1912 were considerable over 9,000 tons, those of 1913 and 1914 show a decline of over two-thirds.

While prices last year were low—$250 to $384 for Dutch, and $192 to $288 for Friesland—the present year's prices show an enormous advance: $600 to $744 for blue and white Dutch, and $400 to $480 for Friesland. Thirty-three cents a pound for Dutch flax, in the language of the street, is going some. This advance is due to the stoppage, through the war, of all Russian supplies of fiber. It is explained that no flax straw has been exported from Holland to Belgium, to be retted in the river Lys—the custom in recent years—nor have Courtrai scutches been able to bring to the Lys any of the French flax straw purchased in the Department of Nord for the same purpose. There would have been a large production in the Courtrai region the present season, as an unusually large stock of straw had been held over from the season before, but none of this is available, and the German authorities have prohibited all export to Holland, the only exit since the war began.

There is some so-called Flemish flax in Belgium—grown in the provinces of Flanders bordering the Netherlands—and doubtless some of this flax finds its way to Holland. Dew-retted Flemish is quoted at $455 to $504, and water-retted at $552 to $695 per ton. There is, evidently, a lot of unprepared flax straw in Belgium, which would be immediately available for preparing and scutching with an early ending of the war; in its unprepared state it is not a marketable commodity. As the Courtrai region was not invaded by troops for several weeks after the war was declared, on August first, doubtless the greater part of the straw was saved. The retting in the Lys does not begin until September, and is continued through the fall until the water becomes too cold to steep the flax straw advantageously.

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A DOMESTIC SUPPLY OF WOOL AND DYESTUFFS

From an Address at Des Moines, by Charles E. Wry, Secretary of the Iowa Retail Clothiers Association

I presume that every clothier in this room realizes how fortunate he is that his field of endeavor lies in this one brightest spot of our country, the great State of Iowa, whose vast and fertile acres furnish the soundest of all foundations on which to build a permanent prosperity. So far we have felt the effects of the war perhaps the least of any section of the world. Even we will not escape from bearing a share of the great economic loss, but I believe by intelligent effort we can help to minimize it.

Until the outbreak of this war, few if anyone in this country realized how intimately interwoven the world's commerce had become; how interdependent we as nations were one upon the other; how in the past few decades certain countries had excelled in producing certain materials, or manufactured articles until they had monopolized the world trade in those commodities.

The war brought a full realization of it to us all. Take the immediate effect on the cotton situation. Our sister states of the cotton belt, with a bumper crop just ready for the market, were dependent on the sections at war to take the nine million bales they raise in excess of our own country's need and their market was gone. Immediately where prosperity had seemed assured, failure and bankruptcy appeared. Firms with assets far in excess of liabilities were forced either into receiverships, or asked for extensions. The effect was felt throughout the country. Patriotic efforts have been made with some measure of success to relieve that condition, and the final result may be more diversified farming in the South. The effect on the cotton mills was just as immediate. The situation is still about as bad as it could be.

Then again, we discovered at once that the whole world was absolutely dependent on Germany for their dyestuffs. That country had it in their power to close practically every textile mill in our country through their monopoly in the dyestuffs field. Luckily arrangements were made that permitted a hand-to-mouth supply to reach us, but the dependent condition has not been changed.

I have had considerable correspondence with a large number of those who know the most of this situation, including a rather extended correspondence with Hon. Herman A. Metz, who besides being the leading importer of German dyestuffs in this country, is also a member of the Congress from New York. I have gathered a considerable amount of material bearing on the matter which I will be pleased to offer for consideration to a committee from this organization. Many sugges-

tions and plans for relief have been offered. Personally, I think the one proposed by Congressman Paige of Massachusetts, who in a bill introduced in Congress a short time ago proposes to provide a working clause in our patent laws as applied to dyestuffs. Naturally, there has been much opposition from the dyestuffs interests and from others as well to this plan. It seems to me a working clause supplemented by a sufficient tariff protection would help in establishing a dye industry here. Believing this, I feel that Congressman Paige should have encouragement and support in his efforts.

But just now, we are face to face with a still graver situation than any of these, and that is in the present wool situation. This country produces in normal times a little less than three-eighths of the wool used by our mills, for the other five-eighths we are dependent on foreign supply, and a serious complication has arisen as a result of the British embargo on wool. This embargo is firmly maintained. There have been slight concessions made in the export of merino wool, but I understand such exports from British territory are surrounded by so many conditions as to make them of little value in relieving the shortage in this country. The seriousness of this embargo will be realized when you consider that practically 50 per cent. of our imports of wool comes from England and her colonies, another 17 per cent. which we normally import from Turkey, Russia and other European countries has been cut off by the war, leaving us with a most uncertain hold on the South American and Asiatic markets from which we normally obtain 35 per cent. of our supply of foreign wool. In other words, we are left with less than 60 per cent. of our normal supply, including our own domestic clip. This shortage is here right now. A mill man told me just a few days ago that he had visited three markets in search of a carload of wool and was leaving for another market that day, but he had not been able to supply his need though he was paying 60 cents for the same wool he had bought at 42 cents a year ago. He told me he had only a three weeks' supply on hand.

You must consider, too, that the entire world supply of wool provides only 14 ounces of wool per capita for the people living outside of the tropics,—not enough to make a respectable sized breech cloth. This 14 ounces per capita must supply the raw wool for all the wool clothing, dress goods, blankets, and the thousand and one articles made from wool. The deficit is made up by the use of shoddy. It is estimated that the armies in the field are now consuming well over one-half of the world's supply of raw wool. It is claimed that a uniform lasts a soldier only a month and that then it is destroyed, owing to the impossibility of cleansing it in order to manufacture the cloth into shoddy. You can readily understand that a continuance of this situation will result in most serious consequences. Gentlemen, these remarks on the wool situation have been a preamble to a proposal I am going to put before you, and which I hope will have your support.

I believe if the retail merchants of this country would fully realize our country's dependent condition as regards wool, and would work along a systematic plan, and in connection with other bodies that are working to increase our domestic production of wool, that they being immediately in touch with the small farmers at all times could soon effect a complete relief. I have taken this up with the Iowa Agricultural Department at Ames, and also with the Iowa Wool Growers' Association, and with mill men, and can count on active cooperation from all of them.

I would like to see the Iowa Clothiers' Association the first to put its shoulder to the wheel. I wonder if you know that in Mahaska County in this State we are producing today a fine delaine wool that is as good worsted wool as any that comes from Australia; that through efforts of Sol Sheuerman of this city, the farmers around Ankeny and other sections of the State have introduced a cross of shropshire and Oxford sheep that is producing 4 to 5 pounds more wool than the average. Will you see your opportunity and start the movement?

I have another proposal for your consideration that is right along this same line of making our country independent of foreign supply. I refer to the subject that is being so much discussed through the press of the country, the "Made in the United States" campaign. The articles and discussions in the papers are all right, of course, but they will accomplish very little unless the retail merchants of the country lend their active support and cooperation. Congress has been sitting up nights nursing the shipping bill that, it is said, will gain for us a few millions of trade in South America and other foreign countries, and at the same time we are importing into this country each day of the year practically two million dollars' worth of merchandise that could just as well have been made in this country, a yearly total of approximately 700 millions of dollars.

If one-fourth of that amount could be turned to our country's manufacturers today, it would eliminate every free soup kitchen in this country. What are you going to do about it? Gentlemen, there is a patriotism of peace as well as a patriotism of war. Here is your opportunity. Are you going to do your duty? The call is not to shed your blood, or to even sacrifice your treasures. In fact, it offers you chance for great personal gain. Instead of smacking our lips and rolling our eyes and showing other signs of supreme joy in discussing the merits of imported fabrics in the clothing we sell, let us show that same brand of enthusiasm for the fine fabrics made in this country. It is not necessary to go outside of our own country for fine fabrics. There are many mills in this country producing just as fine goods as any imported. All they need is your support. We must not stop, however, at demanding goods that are made in the United States; we must insist that the goods be well made in the United States, we must set a high standard and insist on a high standard.

Do not give the place of honor in your store to the hat or cap just because it has a foreign label. The United States produces just as good. The fact is, you cannot always be sure the hat or cap had a boat ride unless you import it yourself. Let the retailers of this country follow this plan for a time and you would see results, for after all it is the merchant who controls the demand. Your customer almost without exception is guided by your judgment.

AN APPARATUS FOR STEAMING COTTON ROVING

The illustration shows an attachment to a spinning frame for steaming or moistening cotton roving during the spinning operation without materially increasing the humidity of the room, and for which a patent has recently been issued. The process consists in passing the rove through the steam or aqueous vapor and in arranging on the spinning

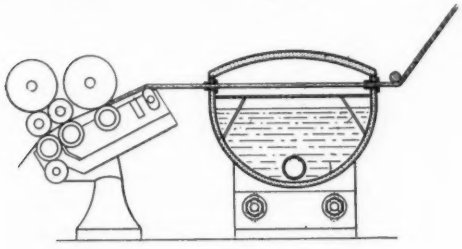

FIG. 1

machine a trough to contain hot water, or a perforated steam pipe through the vapor from which the rove ends are passed.

Fig. 1 is a transverse section of spinning frame head. Fig. 2 is a longitudinal section through the trough, A. Between the bobbin creel of the frame and drawing rollers a trough is fitted through which the rove is drawn. The trough is partially filled with hot water and above the water level a perforated guard is placed to prevent the rove from coming into contact with the water. The trough is covered with a well fitting lid, holes being provided at both sides of the trough for the entrance and exit of the rove as it passes from the creel to the rollers.

The trough is constructed with inner and outer casings between which is a packing of a material which is a non-conductor of heat. The lid is similarly made of inner and outer casings between which a non-heat-conducting packing material is placed. The lid may be hinged to the trough and is preferably held in position by clips or bolts; the joints between the lid and the trough are preferably provided with recesses which are packed with a soft yielding material to make a tight joint. The trough may be made of metal or wood.

The perforated guard in the interior of the trough is held in position by supports, which rest upon the sides of the casing. The perforated guard may be of one piece the length of the trough or it may consist of a number of short lengths to facilitate its removal from the trough for cleaning purposes. The rove enters the trough through one of the holes at one side and leaves it by the corresponding hole at the other side and then passes to the drawing rollers. These holes consist of eyelets passing through the non-conducting material.

The hot water enters the trough through the pipe, which extends nearly the whole length of the trough, then passes back through the trough over the baffle plate to the outlet pipe. To prevent the rove taking

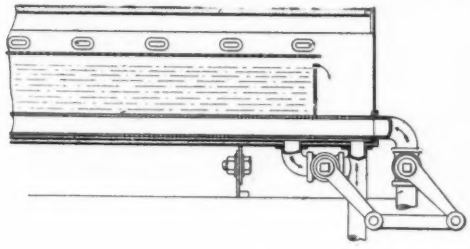

FIG. 2

up too much water during stoppage of the machine a second outlet pipe is situated behind the baffle plate. This pipe is provided with a valve which is connected with a valve in the inlet pipe. Both these valves are connected up with strap fork of the machine so that on the strap being moved on the loose pulley supply valve is closed and the other valve opened, thus cutting off the supply of water and allowing the water in the trough to drain off. Instead of circulating hot water, the water may remain in the trough and be heated by steam introduced through the pipe in the trough. Instead of hot water the pipe may be perforated to distribute steam into the trough.

The hot water supply can be from the heating installation of the room or other boiler or hot water supply or a Bunsen burner may be used for the same purpose, or it may be heated by a steam pipe or the like. The trough may be supported on sliding or adjustable stands to regulate the height and allow for the necessary incline to drain the trough.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

INSPECTION OF WHITE CLOTH

Editor Textile World Record:

Please inform me what is considered the best color for a background over which to pass finished white cotton cloth, such as voiles, lawns, dimities, etc., for the inspection of the cloth for damages, oil spots, grease, stains, and defects in general?

Inspector (2417).

There are two ways in which cloth may be inspected: (a) the cloth traveling; (b) the cloth at rest. The conditions affect the reply in some degree. When cloth is looked over after being folded the laps form their own background. It is, however, assumed that the question implies the travel of the cloth over an inclined table and that the questioner wants to know what color the table had better be. The common practice seems to leave the coloring of the table to nature and the result is to provide a brownish background. It is apparent that as between the several cloths named conditions are not equal. Voiles have interstices making them transparent. Lawns may be thin enough to be translucent and allow the color of the table to be more or less perceptible through the goods. Dimities are or may be opaque. It is expressly desired to render visible defects which are white (e. g., ends of yarn upon the face) and also defects (oil stains and grease spots) which are darker than the fabric. In the circumstances the objects are not perfectly compatible.

The general effect of using a black background is to emphasize the whiteness of the white object placed upon it, but in this respect something depends on the relative sizes of the objects concerned. In the case of a white opaque fabric the material factors are the relation of the width of the cloth to the width of the table. The background frames two sides, as it were, of a picture and the position of the observer, which in some circumstances would also affect the case, may be taken as fixed. The idea being to concentrate attention upon the picture and not upon the frame it cannot be desirable to make the latter too conspicuous. Thus the use of a dingy, neutral brown like that of common wood would seem to justify itself, as the contrast is sufficient to mark off the boundaries of the object supervised without accentuating the contrast to the point of fatigue. If the cloth is to be watched hour after hour the question is as much one of the endurance of the individual as of theoretical perfection.

When the fabric is not opaque the color of the background modifies the virtual color of the object to an extent dependent both upon the rate of travel and the color of the background. Seen at rest upon a black background a voile is a white network, but in traveling the impression of whiteness merges into that of blackness and the image is a gray, not very trying to the eyes, but not directly favorable to the detection of grayish stains. To make stains as conspicuous as possible, it would be desirable to have a background of white, but in that case holes and weaving faults must be more difficult to see and they are possibly the most important blemishes of any. To detect imperfections of weave a black or dark ground is manifestly preferable to a white or light one.

Fatigue of the eye arises more from staring at the object rather than at the incidental background and consequently the nature of the surface of the fabric is of most influence. Otherwise it might be of greater importance to point out that the matter is not solely one of color. A polished surface,

reflecting light in a mirror-like manner, is clearly a more tiresome one than a dull surface. Thus it seems generally desirable to have a dull as well as a dark-surfaced table, although in practice the polish on the table must have a minimum of importance as compared with that upon the cloth.

Venator.

The best and most serviceable background for inspecting white cotton goods I have found to be a black surface set at an angle with a covering of one-quarter inch plate glass over the black cloth. I had some difficulty in determining which was best and as an experiment had three tables in front of the machine covered with different shades. Under one I had green, another red and another black. Some of the inspectors, who were young women, preferred one color and some another, so I changed them from one table to another and I obtained the best results with the black background.

We had some very heavy bedspreads in fancy weaves and with these I had one corner of the cloth room arranged with rollers in front of a large window with a good light. I had these pulled over the rollers, with a young man standing behind the cloth inspecting it as it passed slowly over the rollers. Having the tables covered with glass causes the cloth to slide easily. With light cloths such as lawns and voiles it is necessary to have the surface of the inspecting board as smooth as possible. With the black background the imperfections in weaving will show up very clearly, and even when there is an end out it shows up very plainly. Stains and spots also show up clearly.

Delco.

BEST MATERIAL FOR BLEACHING TANKS

Editor Textile World Record:

I have read with interest the reply to the question asked by "Aran" (2361) which appeared in the February issue, and think that my experience may be of interest to your readers. I was having the same difficulty that "Aran" is experiencing. I was employed in a small lace mill to do their bleaching and found that they had pine tanks in which to do the bleaching and souring. I informed the owners that the chloride of lime would eat out the tanks in a short time. They did not want to go to the expense of lining them. They worked well for a time, but in about six weeks the lime had eaten through the edges between the bottom and sides. At this time we had a man putting in a cement floor in the bleach house and the thought came to me to line the tanks with cement. I had the man nail half-inch strips of wood 2 feet apart along the bottom and sides inside the tank. Then he put on laths about half an inch apart, and plastered the tank with one part Portland cement and four parts sand. After this had hardened we washed it well and it gave good results. Since that time I have had quite a number of tanks lined in the same way. One knit goods mill I worked in was having trouble with stains caused by the goods rubbing on the lead lining in the bleaching tanks. I had the lead taken out and cement put in and the stains disappeared.

Hector.

BLEACHING TAPE

Editor Textile World Record:

We are sending you under separate cover two rolls of webbing. On examination you will note the different shades. This web apparently appears even in color after bleaching, but after it is starched and calendered it takes on these different shades instead of being a uniform white. Do you think the trouble is in the bleaching or in the calendering process? Our process of handling is as follows: The goods are woven in the grey and after leaving the loom are reeled into skeins and bleached. After being bleached, the skeins are rewound on spools and the web is sized and calendered. The size used consists of 10 lbs. gelatine gum, 2 lbs. zinc whitener, 15 gals. water and a trace of blueing per batch. The calender used is a 6-roll steam heated machine, the first two rolls being copper, the balance being iron rolls. After leaving the calender the web runs into cans and is blocked up in rolls.

Caldera (2390).

I find on examining the two samples of tape that there is a decided difference in color. There are so many causes for this trouble that it is hard to tell just what is the right one. The goods may look white after they are bleached and apparently both be alike, but if there is any acid left in them they will turn yellow after passing through a heated calender. The zinc whitener is perhaps used too strong, or the copper rolls may be the cause of the trouble. The latter is the most probable place, especially if the

tape is run through the heated rollers in a fairly damp condition. The friction of the copper rolls along with the heat and moisture in the tape would cause this defect or stain. The best way to locate the trouble is to be very particular in washing off the goods after bleaching, making sure that there is no acid left in them. I would suggest submitting them to the litmus test. It is necessary that the goods be free from acid as this would also cause tender material.

The zinc whitener may also be the cause of the trouble if it is used in too large a quantity as this is liable to act on the copper rollers, thus leaving a stain on the tape which does not show up until the goods are cold.

I think that the trouble is caused by the rolls, which produces a certain amount of friction and grind off particles of copper, leaving a stain on the material. Cotton or paper rollers are better than copper. They give the same pressure and the results will be more satisfactory. Alpha.

BLEACHING KNIT GOODS

Editor Textile World Record:

I have been interested in reading the replies to the question from "Bleak House" (2325) regarding the bleaching of knit goods. "Comarty" states that 22 lbs. pressure is too much and that it would be better to keep it at 12 lbs. It is my opinion, however, that the difference of pressure has not the slightest effect on the goods, so far as causing any loss of elasticity is concerned. A pressure of 12 pounds gives a temperature of 244° F.; at 22 lbs. the temperature is 262° F.; a difference of 18 degrees, which is not much in a closed kier where the goods are always covered with water during the entire boil. There are types of kiers in which the boiling action is intermittent and the goods at the top are not always covered with water. In such kiers an excessively high temperature might tender the cloth at the top, but this would not affect the elasticity.

The chief cause of the harshness and loss of elasticity is the use of caustic soda in the kier boil. I would not use it at all, but would increase the amount of soda ash, using from 1 to 2 per cent. of good soap, soluble oil or monopole oil in the boil with the soda ash. If the goods are to be blued, add a little soap, soluble oil or softener. The difficulty is not due to too much pressure on the kier, but the use of too much strong caustic lye during the boiling of the goods. Amazon.

DYEING DEVELOPED BLACK

Editor Textile World Record:

I am sending you two stockings dyed with Developed Black according to the following formula and which as you see have faded out very badly after being worn.

For 100 lbs. of hosiery use

8 to 10 lbs. Zambesi Black V

to start with and

25 to 30 lbs. Common Salt.

In the standing kettle 25 to 30 per cent. less dyestuff is required and only 5 to 10 lbs. of common salt. The goods can be entered at the boil. Boil gently for one hour and rinse in two cold waters. Then diazotize for 20 minutes in a cold bath containing

3 lbs. Nitrite of Soda and
12 lbs. Muriatic Acid.

In case of copper or brass dye vessels use about half the amount of sulphuric acid in place of the muriatic acid. Rinse in two cold waters and develop immediately for 20 minutes in a cold bath containing

1 lb. Meta Toluylene Diamine and
1 lb. Soda Ash.

Rinse in cold water and soften as usual. Mercerized goods require about 20 per cent. less dyestuff than mentioned above. On silk goods it takes sometimes a little more.

Do we expect too much of a developed black? We have the same trouble with our half silk hose which are dyed with Zambesi Black V. The color is fast enough on the silk, but fades from the cotton in a short time. Dyer (2432).

The above dyeing formula is correct for producing a good black with the dye named in it, but if the second bath has been made up with "Nitrate of soda," it is easy to see how the dyeings are not up to standard. Nitrite of soda is what should be used in the cold diazotizing bath as this salt, in connection with muriatic acid, will liberate nitrous acid, which acts on the dye already on the fiber and prepares it to react with the developer in the last bath. Many dyers have made the

error of using nitrate instead of nitrite, each of which resembles the other somewhat, but the error is seldom repeated.

If nitrite of soda has been used, and the recipe followed out exactly as given, then the lack of fastness to washing must be looked for in another direction. In one case the hosiery may not have been boiled in the dye bath for a sufficiently long time, and not enough dye was taken up by the goods, in which event, the color would not be as full and deep as it should. Here, however, the shade seems to be very good. On the other hand, it may be that too long a time elapsed between the second or diazotizing bath and the developing bath. If too long time is permitted to pass before the stockings are put into the developing bath, the effect of the nitrite may have passed off.

From the fact that this correspondent admits that he obtains a good shade on his silk as against the cotton, it seems that his dyeing of the cotton is not thorough enough, and that more time be allowed for the goods to be in the boiling dye bath. With the exception of the nitrate in the formula, it is a good one to work with. Beta-Naphthol.

ACID IN OIL

Editor Textile World Record:

Please give us a method of determining the presence of acids in lard oil. Essex (2416).

The quickest way to ascertain whether a given sample of lard oil contains any free acids, is to take a small sample of the oil that is suspected, say an ounce, and shake it with an equal volume of pure alcohol, not wood alcohol, or any of the denatured varieties of grain spirit, but pure grain alcohol of the druggist. After shaking for a few minutes, allow to stand for a short time in order to allow the alcohol to separate, which is then carefully poured off into a clean test glass. Into the alcoholic portion, place a small clipping of blue litmus paper, which, if any acid is present, will immediately change to a red color. Putting a drop of the oil directly upon the blue litmus paper is frequently done, but the results are not as definite as by the method described.

The above test merely discloses the presence of acid without regard to whether it is a fatty acid or a mineral acid, the method for which is somewhat more complicated.

Berwick.

LONG ELLS

Editor Textile World Record:

What are the Long Ells, references to which I am continually finding in reports from the China market? Maynard (2394).

Long-ells are serges made with worsted warp and woolen filling and dyed scarlet or orange as a rule. They have been made in England for not less than 300 years and were one of the principal articles in which the East India Company traded. The company, which lost its charter in 1883, shipped 240,000 pieces of long-ells a year to China and the continued existence of the trade, although in an attenuated form, is some testimony to the conservatism of the China market. Apparently the average present consumption is about 35,000 pieces a year and it is understood that the cloths are used mainly for military purposes.

An extract is given from one of the notices issued by the East India Company to manufacturers:

East India House.
28 May 1818.

I have the orders of the Committee of Buying & Warehouses of the East India Company to acquaint you that they are ready to consider Tenders for the supply of Green Forrel Long Ells:

(2) The quality of the Long Ells must be equal to the Company's standard sample A. Each Long Ell must be of the full length of 24 yards and be full 31 inches wide and weigh 12 pounds. . . . Positive orders are given to the Company's Overlookers not to pass any Long Ells of inferior wool or worse weaving than the said sample.

(6) The Forrel of the Fag-end must be put three inches within the extreme end of the Ell & the stripes must be dyed with Indigo & not with Logwood.

(10) Each Maker shall cause his Name to be worked into the Long Ell in a very distinct manner with Linen or Cotton Thread.

The Forrel is presumed to have been a striped heading to embellish the appearance of the cloth. The company bought two qualities of goods designated as Forrels and Supers. The pieces were made originally in Devonshire and later in Somersetshire and the transference of the trade to Yorkshire apparently came much later. Long ell seems to be an abbreviated name. Defoe, writing

in 1738, refers to them as "Long ells or perpets," perpet being an abridged form of the word "perpetuana." Cloths called by the full name "Long ell broad perpetuanas" were among the regular articles of commerce with the Spanish West Indies in the 17th century.

It is interesting to speculate on how the goods got their name. The probability is that they were thus called because they were one long ell in width. There were ells of different lengths. The standard English ell was 45 inches, the Scotch ell 37.2 inches and the Flemish ell 27 inches. Likely enough the goods owed something to Flemish intervention and we have seen that they were 31 inches wide. The width was a (Flemish) ell and a bit. In a country abounding in "long" dozens, "long" scores, "long" stones and so forth this naming would be natural.

James Strand.

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UNEVEN KNIT GOODS

Editor Textile World Record:

You will find enclosed a sample of knit goods made from four ends of 8os worsted and 4 ends of 8os cotton. The 8os worsted is running from the inverted bobbin stand on a 12 cut latch circular machine. I would like to know why it does not knit more evenly. I think that I have the stitch set as even as possible. Knitter (2422).

After examining the knit sample carefully I have come to the conclusion that the cams must be worn and that the dial needles do not hold the same positions when the machine is running by power as it does when evening the stitch by hand. I have had the same trouble in knitting 2/8os on a 12-cut machine. If the cap plates are sectional, set the micrometer calipers for one section that "Knitter" thinks is right, then set all the sections to the calipers, doing the same for the cylinders and dial. Examine the dial cast of cams and see that one is not worn more than another at the point where the needles are out while the cylinder needles are pulling the stitch through the dial needles. If the cams are worn they will let the needles out farther when running by power. The dial needle has a slant in it from the hook to where the latch is riveted in and on these short stitches the stitches are usually drawn back of the hook on the small part of the dial needles. If these cams are not all perfect when the machine is running by power, the needles will throw out farther, causing the stitch to be drawn on the larger part of the needle than when evened up. I would suggest that "Knitter" look his dial cams over very carefully for I think his trouble lies at the point where the stitch is drawn. Denbigh.

After examining the sample I can think of three things that might cause the unevenness: First, uneven yarn, not true to count; second, uneven tension on the yarn; and third, uneven stitch on the knitting frame. It would be difficult to determine from an examination of the sample which one of the three possible causes is responsible in this case. Let "Knitter" make certain that as the yarn unwinds from the bobbins the tension is equal on all bobbins. If satisfied that his knitting stitch is even, try reeling off some of the yarn to see if it is the right size. Fine yarns if not the right size will make a marked difference in the appearance of the cloth on this class of work. I would also suggest that "Knitter" appeal to the machine builders for some advice along this same line, as they may be able to suggest something that would prove of value in securing even knit cloth. Caliature.

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STREAKS IN SILK GOODS

Editor Textile World Record:

I enclose a piece of silk goods and should like your opinion as to the cause of the light and open streaks running across the whole width of the filling. These open places have less picks per inch than the regular goods, as you will discover by the aid of a pick glass. Denham (2429).

On examining the sample of silk goods I find in the light place 19 picks to 1/4 inch and just below 21 1/2 picks to 1/4 inch, whereas there should be 20 picks to 1/4 inch at each place. These tight and loose places are caused, in my opinion, by not setting the loom properly when starting up, after picking out or after the shuttle has run empty. This trouble can be prevented by using a measure made for that purpose. If loose or tight marks appear at regular intervals they are caused by an irregular gear not being set right, or by ropes or chains on warp beams not letting off properly, or by a friction beam causing the cloth rolls in front of loom to be too tight. The friction should be set so that

the cloth is slack between the bottom roller and the roller in front of sand-paper beam. If the reed falls back 1/4 inch in heavy goods and not at all in light goods, the set marks can be greatly lessened. With the additional set measures weavers should be able to eliminate them altogether. Lithonia.

. .

The open streaks seem to come at regular or certain intervals and of practically the same width. This indicates that the take-up on the cloth beam is the cause of the trouble. The pick wheel does not operate properly at certain intervals. The pick wheel takes up a little more than the necessary amount, probably two picks, and thus leaves a slight space between the picks for a few picks. It then begins to work right. The tension on the warp may have something to do with this also, if the tension was not sufficient to hold the warp rigid enough or if the tension weights slipped now and then. This would cause extra spaces in the picks. The difficulty can be easily remedied by watching these points and making the necessary adjustments. A loom fixer will do this quickly. Swansea.

. .

I have had this same trouble with silk goods and have found it very serious. Take out all backward and forward movements in the reed, but be sure to let it have free movements from side to side. See that the sheds are equal, and breast and whip rollers both true. The top of the whip roller should be level with the center of the open shed. See that the flanges on the warp beam are not loose and that screws are not sticking through them. Warpers with very thick spanning rods cause the warp to let off in the loom like an eccentric. See that the weight ropes slip evenly and that the weights are not too near the floor. If they are the vibration of the loom will cause the weights to strike the floor. In the sample received the open places occur about every twenty picks and it seems to me that the trouble is in the slipping of the weight ropes. Use a good lubricator and rub well into the ropes. I have used stove polish with great success. Ryswick.

TERMS USED IN KNITTING

Editor Textile World Record:

I note in the March issue an inquiry "Norfolk" (2407) concerning the word "Norfolk" in connection with sweaters. A Norfolk sweater is one made along the general lines of a Norfolk jacket, namely, with a box pleated and belt effect. The stitch may be changed in various ways to simulate pleats. I do not think there is any particular stitch called "Norfolk," but that the name signifies a combination of stitches that produces the Norfolk effect. Tyrone.

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Editor Textile World Record:

I have read the reply to the question (2407) regarding terms used in knitting. The word "Norfolk" is applied to any garment either knitted or woven where the coat contains a pleat on both sides of the coat, back and front, with a belt around the waist. It is not a trade mark, simply a trade name used by both knitters and tailors for garments of this cut. It is worn by men, women and children. There is no such thing as a "Norfolk" stitch in knitting sweaters. When a garment is made up in this style it makes no difference whether it is a shaker or any other stitch. Hawick.

BLUE SPOTS ON KNIT GOODS

Editor Textile World Record:

I have read with interest the replies to the question ("Nixon" 2427) regarding blue spots on knit goods, and take this opportunity of giving a few remedies that overcame this same trouble for me. I had prepared skeins for the knitting room and found when knitted that blue specks would appear on certain parts of the stocking. I started to trace the trouble and found that when the men handled these skeins they rubbed them against their blue overalls, which stained the yarn blue. I have trucks which are used exclusively for bleached goods. It is a bad practice to do the bleaching and dyeing under one roof. All the dyestuffs are weighed outside. Barton.

Knitting Department

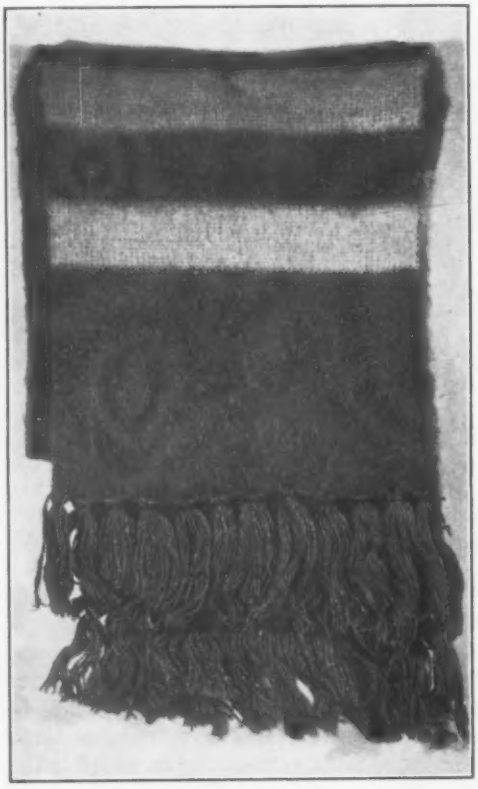
KNIT GOODS SITUATION

The orders on summer underwear have been rather discouraging to a good many manufacturers who had their hopes raised a short time ago when there was a fair inquiry. Lately these orders have been nominal and only what had to be bought. The only way to run a mill in a prosperous way to the satisfaction of the stockholders is to have a fair proportion of the production sold in advance. To do this they offer special inducements, with the confident expectation that after they have a good percentage of their product sold up, they can withdraw all special offers and advance their prices. So long as they let the trade know that they have a fair stock on hand, a buyer in a market like that at the present time, will naturally hold back his purchases until the last moment.

What we need now is some mild weather, which will be a great help to everyone. If the buyers have a good summer business, they will have more confidence in placing their duplicate fall orders far enough in advance to allow the manufacturer to make up heavy goods and put them up in proper shape. When the buyer waits until the last moment to buy, he has to take whatever the mill has on hand, which is always unsatisfactory to an up-to-date jobber, who tries to insist on special boxes, labels, etc., and then expects the goods to be shipped at once.

There are still calls from England for ladies' flat fleece pants. These are for regular consumption and are made of the same material that is used in men's flat fleeces. They are made with a drop seat fastened at the knees and with a wide band which is made of a lighter weight material. England never made the fleeced cloth, such as is necessary for these garments, but has obtained the goods from Germany in the past.

The manufacturers expect more interest will be shown by the exporters in summer underwear. This is bound to come if hostilities continue much longer. Some manufacturers who have had an opportunity to sell their merchandise to the exporters in England who do a regular jobbing business, have refused to accept these orders, as they do not want any business except payment on delivery to the steamship dock, which has been the manner in which all war supplies

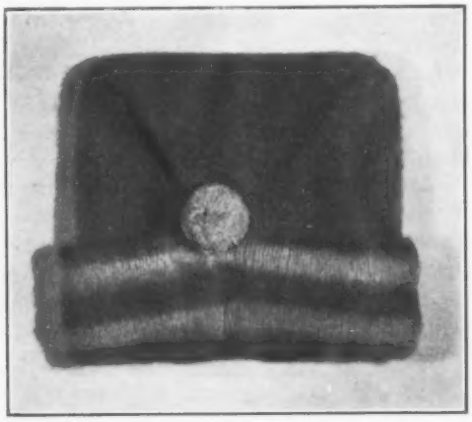


A KNITTED WOOLEN SCARF

have been sold. Sooner or later these matters will adjust themselves, as it is far better for our future if we can establish American made goods and brands, rather than to rely on the contracts for war supplies which will cease as soon as hostilities end.

We all thought last August that the dye situation would have a serious effect on ho-

siery. If business had been anywhere near up to the standard, prices would have advanced, but as orders were light, the prices remained low. Now we are facing a much more serious condition. Everyone wants a fast black, no matter how low the grade is and heavy hose absorbs a lot of dye. With dyes scarcer than they were last fall and business better, someone will have to pay an advance—now or very soon if they want



A NEW STYLE KNITTED WOOLEN CAP

to get reliable colors in hosiery. The American buyer is apt to be skeptical about the possibility of not having enough dye materials, as he believes the American manufacturer can overcome every difficulty, but few of them realize the cost and magnitude of a dye plant.

Many jobbers who had a fair stock of tan hose on hand were worried on account of there being no demand for this color and endeavored to have them re-dyed. Ordinarily this can be done at a nominal cost, but they found the new rates for converting the goods were much higher. They will probably be just as well pleased that they did not go to this expense, as it now looks as though there would be more tan shoes worn this summer and fall than for some time past.

France is begining to show some interest in ladies' seamless hosiery, and if we succeed in getting these goods established, it will be a more lasting trade than the business in wool hosiery, as the latter is for war use only. We will have to master a good many of the details of their customs regulations. In the past they have supplied themselves largely with hosiery from German manufacturers, who land the goods for the buyer, pay all duties and look after all details, saving the customer considerable trouble and annoyance. All of these details we will have to get familiar with. With the handicap the Germans will have in the future in France, our hosiery, especially the mercerized lines, ought to have preference for some time to come, the same as our cheap silk hose now has abroad.

Some of the manufacturers of sweater coats a short time ago sent out notices explaining the condition of the wool and worsted yarn market and strongly advised covering for next fall, so they in turn could buy their supplies. This brought a fair response from the trade and created a better feeling. The buyers who acted on this advice are now well repaid, as there has been a general advance all along the line with prospects of further advances, unless there is a sharp reaction in worsted and woolen yarns and this does not look likely.

There has been quite some demand for woolen scarfs with caps to match. The best sellers today are those that have striped ends, as shown in the accompanying illustration.

A KNITTING MACHINE NEEDLE

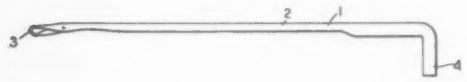
The illustrations show a knitting machine needle recently patented in this country. The inventor supplies the following description: This invention has for an object to provide a needle which will be reliable and not subject to breakage at the butt and which will provide a proper bearing at the heel to keep the needle from tipping in its slot.

Knitting machine needles as most commonly manufactured are made from wire bent to form the butt and heel, and then flattened. The butt of the needle consists of a loop of wire, which at the outer end is bent double upon itself and thus weakened, the distortion of the metal and the internal stresses resulting in frequent breakage.

The broken ends of the needles sometimes fall among the working parts and cause serious trouble, for which reason it is particularly important to provide a type of needle in which the breakage will be reduced to a minimum.

The butt of the improved needle is formed by the bent up end of the wire body. The

FIG 1



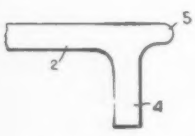


FIG. 2

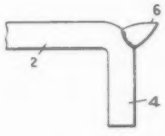


FIG 3

heel is made integral with the butt by shaping a part of the metal to form the butt and a part to form the heel. This may be done by drawing out the metal at the angle of the butt after the end of the body has been bent to form the heel, or by dividing this end of the body either before or after bending and forming the heel from one divided end. If the end is divided first only one part is bent and the other part is left straight to form the heel. The shank, terminating in a yarn receiving hook is formed as usual by drawing out, bending, etc., and may be formed either as a latch needle or as a spring hook needle.

Fig. 1 is a side view of a latch needle, the end having been bent up to form a butt, and the shank and butt having been flattened; Fig. 2 shows the butt after the metal has been drawn out at the apex of the angle to form the heel; Fig. 3 is a view similar to Fig. 2, showing the heel as formed by drawing out the metal at the angle in a somewhat different manner; Fig. 4 shows a different method of manufacture, with the butt partially formed; Fig. 5 shows the butt after the surplus stock has been removed; Fig. 6 is a similar view of the same parts after the metal has been drawn out to form the heel; Fig. 7 is a view similar to Figs. 2 and 3 showing the heel drawn out to a different shape; Fig. 8 is a side view showing the blank after the first step of another method of manufacture in which the end of the needle body is split and one part bent to form the heel; Fig. 9 is a similar view showing the blank after the surplus metal has been cut away from the shank and the divided portion bent down to form the heel;

FIG. 4

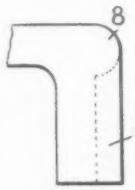


FIG. 5

FIG. 6

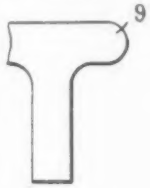
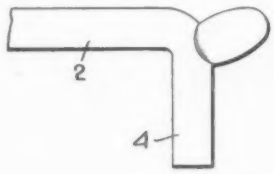


FIG. 7



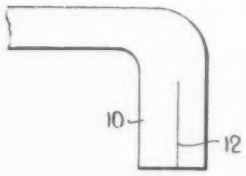


FIG. 8

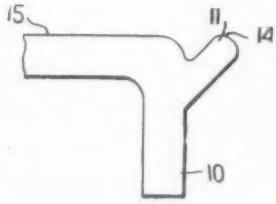


FIG. 9

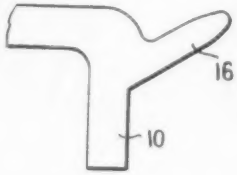


FIG. 10

Fig. 10 is a similar view showing the bent back portion as drawn out to form a more extended heel.

The body of a needle has a shank, 2, terminating in a yarn receiving hook, 3, and having the other end bent at an angle to the shank to form a butt, 4. In order that the needle may not tip in the knitting machine when it is drawn backward by the cam act-

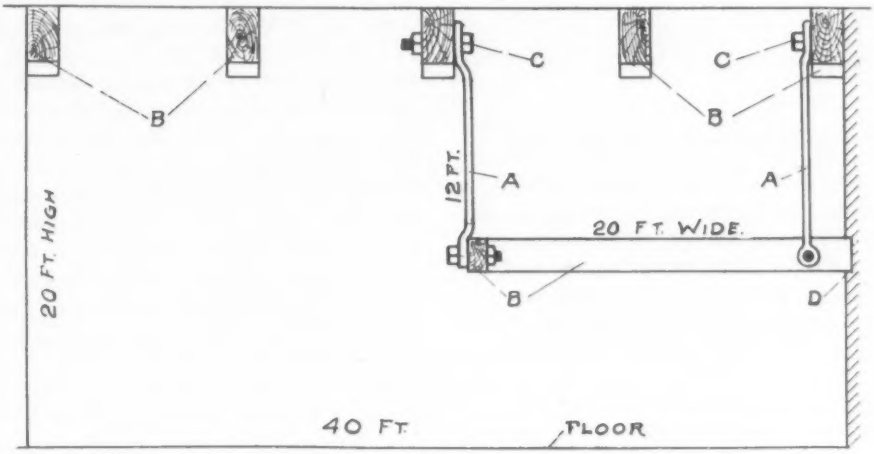
ing upon the butt, it is necessary that it should have a heel portion projecting beyond the butt on the edge opposite from the shank and this heel portion must present a bearing in alinement with the back edge of the shank. Fig. 2 shows this heel portion as formed at 5 by drawing out the metal at the apex of the angle formed by the shank and butt. This heel is thinner than the rest of the needle, but this is not a serious disadvantage as there is sufficient stock to provide the necessary strength, there being comparatively little strain upon this heel portion, and such strain is in the direction of its greatest strength.

The improvement in all forms provides a knitting machine needle having a suitable butt and a heel presenting a bearing beyond the butt and in line with the back of the needle. The metal of the butt and heel is homogeneous thus eliminating welding or similar operations; the grain of the metal extends lengthways of the butt, thus eliminating the sharp bend of the grain of the metal at the end of the butt which has always been a great source of weakness. There are also all the advantages due to the use of wire which has always been found superior to sheet metal from which needles are sometimes made by stamping or punching operations are retained.

HOW WE INCREASED OUR FLOOR SPACE

BY HAWICK

The cutting rom in the mill where I was employed was probably 40 feet wide by 90 feet long. The building was rather old-fashioned, having a ceiling about 20 to 25 feet high. We had three large cutting tables in this room, but our business was rapidly increasing, and we soon needed additional room. It was impossible to enlarge the room so we found it necessary to utilize all the space we had. We tried several methods of rearangement, but could not increase the floor space materially. We then tried to devise some plan whereby we could utilize some of the space overhead.



SHOWING METHOD OF INCREASING THE FLOOR SPACE IN A MILL

The building was built with heavy rafters and large posts supporting the roofs, so we decided to make a sort of hanging floor. This we did by getting some very heavy iron rods about 1 1/2 inches in diameter, with a loop at each end and about 12 feet long. We fastened these to the large rafters at intervals of four feet and in the center. They were fastened to the rafters with heavy bolts with a washer and nut, holding them fast on the end. On the lower end of these rods we hung large rafters about 3 1/2 by 8 inches. These were pieced together so as to extend the length of the room. We fastened these rafters in the same way in which we had

fastened the rods to the ceiling. Holes were cut in the wall of the building and rafters were extended from these holes to meet the large rafter. These were also placed at intervals of about 4 feet and fastened by means of large spikes and were also hung by means of rods. We then had our framework complete and to this we nailed the flooring. This increased our floor space about one-half. At first we had a stairway going up to this hanging floor, but later built a runway or incline. The illustration shows this hanging floor. The heavy rod, A, has a loop at the end; B, large rafters; C, nut and bolt; D, cut in wall to support rafters. The floor was approved by the building inspector and has been supporting several tons.

COTTON KNIT GOODS IN ENGLAND

By Our Regular English Correspondent

At a date not too distant to be remembered the undergarments of both sexes in England were made from flannel and the only knit goods worn were on the feet. Stockings and socks now form rather the smaller half of the knit goods business in the United Kingdom and it is on this department of the trade that the British manufacturer has the strongest hold. The only year for which there are returns showing the British production in knit goods is 1907, when 14 million dozen pairs of a value of $21,500,000 were recorded. The composition of the articles is not separately shown, but it is sufficiently evident to the eye that wool goods form much the largest part. Wool stockings are a British stronghold and the point is emphasized by a glance at the import returns for the last complete year of peace. In 1913 one million dozen pairs of cotton stockings were imported, against 16,000 dozen pairs of wool stockings, and it barely affects the contrast to say that the quantity of the latter had been three times more in the previous year. Of a visible $23,000,000 of stockings and socks produced or imported quite a small fraction were of other than British make.

There are no figures showing the production or importation of knit underwear by volume, but those of value suffice to tell a plain tale. The output of British knit shirts, pants, vests and combinations (exclusive of fancy goods) in 1907 was $13,300,000 in all. The imports of knitgoods other than stockings was $12,000,000, and of these ten millions worth were cotton and two millions wool. The meaning of the figures is that the consumption of underwear is slightly the larger half of the whole trade; that in both departments British makers succeed better with wool than with cotton; and that they have shown themselves much more able to satisfy home demands for stockings than for underwear.

In round figures $14,000,000 worth of knitgoods have been imported into the British market under normal conditions and eleven-fourteenths of the whole have come from Germany. Doubtless there is room for goods duplicating the qualities of any of the articles received hitherto, but manifestly the main gap is in undergarments made from cotton. The inference from the figures squares with the advices received from traders. Every draper with a working class connection has a sale, especially for women's combinations and divided skirts and to some extent for men's pants and vests. The articles retail at the popular limit of 1s 11d (46 cents) in the lowest quality, or at 2s 11d (70 cents) in a better quality. The first name is a cut line for all parties and means that not more than 16s ($3.84) per dozen can be paid to the manufacturer. The wholesaler and retailer have both to live out of the 14 cents margin between the cost and the retail price. More margin is provided for everybody in the 70 cent line. A price of $4.32 per dozen is paid to the maker and $5.28 is paid to the wholesaler. The disproportion in middle profits is highly conspicuous. Five cents more is initially paid for the one quality than the other, but for the extra value an excess of 24 cents is paid by the consumer. All that can be said about this aspect of the matter is that the same disparity prevails in other goods, both in garments and in fabrics. There are quick sales to be made in the cheapest variety and virtually unlimited orders can be looked for of suitable goods, but it is not professed that

the line is a remarkably remunerative one.

The business can be done solely with first-class firms, paying cash in seven days and no-body with the best goods to offer need consider the question of dealing with second-rate buyers. The trade is one which British makers have never possessed, in a style of goods originated in Germany. Efforts have been made to produce a suitable fabric in this country, but the verdict has hitherto always gone against the cloth as too heavy and solid for the work. The German makers are understood to owe much to the stock used in making the yarn. Linters, waste cotton and Indian cotton are said to be taken and spun upon German waste-spinning machinery such as is not used in this country. It is doubted in the trade whether the knitting machines used in England are entirely suitable for the work and it is apparent in any case that English makers are not expressly organized to produce the articles required. The possibility that America's knit goods manufacturers, with their more specialized outfits, can improve on English attempts is recognized and the opportunity is large enough, at any rate, to deserve consideration at their hands.

There are makers-up of garments who would engage in this line if they could obtain supplies of suitable fabric, but the wholesalers expect to buy the garments ready-made and it is probable that manufacturers would prefer to sell the garments rather than the cloth. Large Leicester and London hosiery manufacturers have been buyers of German goods which they have distributed with their own without disclosing the origin. The most important buyers, however, are certain London and Manchester wholesale drapery concerns. More or less all of these wholesale, or "home trade" houses as they are called, have knit goods departments, but with some the article is more of a specialty than with others. These concerns are accustomed to buy through resident commission agents who might be expected to want on such goods about 2 per cent. for their services. The number of agents willing to represent good manufacturers of any sort is unlimited, but those whose services are really advantageous are considerably fewer. If agents were not of real use they could not be employed as systematically as they are by British manufacturers and the only manufacturers who can dispense with them in practice are such as have local establishments of their own. A representative upon the spot is a necessity in continued dealings with English wholesale buyers, but discrimination has to be exercised in the choice of men.

The cotton goods most sold are careful imitations of wool made chiefly in natural gray or brown mixture colorings. The combination sent as a sample of what an English draper considers good value at the retail price of 70 cents are labelled "Unshrinkable" in further imitation of wool. The color of the sample is pink, as are its trimmings, pink being the only color remaining in stock at the time of purchase. While the sample serves to show a typical class of goods it has to be added that the bulk of the cheap German garments sold have been raised more upon the back. [The sample can be seen at our Boston office.]

KINKS IN KNITTING

BY GLENCAR

We had an old 14-inch frame that was causing us a great deal of trouble. The fixer had quit on account of it and the foreman was at a loss as to what should be done. The superintendent wanted some samples from that frame at once. The frame would not run without making holes. Every adjustment that would ordinarily prevent a frame from making holes was tried, but they only increased the number. The yarn was good, the needles were new, the cams were smooth, the yarn guide perfect, the take-up semed right, but no one could find the real cause. Other frames were running the yarn all right, so the superintendent decided to send for the machine agent.

The foreman was a stockholder and a relative of the owner and what he knew about frames was only what he had picked up during a few months before being given charge. The machine agent came, looked over the frame, made a few adjustments and started it running. The same old holes appeared.

He worked on the frame all day and part of the next before finding the cause of the trouble. The edges of both dial and cylinder were worn sharp, as shown at Fig. 1. The needles had cut through, leaving a knife edge, some places being worse than others. He took the dial and cylinder to a machine shop, had the edges smoothed, without taking off any more stock than was necessary. Returning from the shop he started to

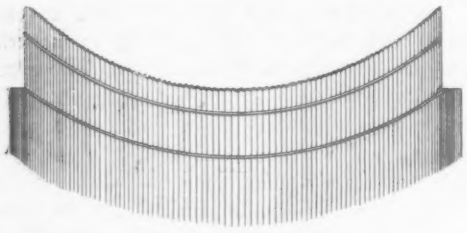


FIG. 1

smooth the slots with strings of emery cloth. He also sent for the fixer and showed him the cause of the trouble.

A short time after this another frame in the same room was making holes in the cloth. It was discovered that the screws that held the yarn guides to the stands were causing the trouble. It seems that the rough heads of the screws were catching and holding the light yarn. To remedy this the top of the yarn guides were bent, so the thread could not touch the screw heads. Fig. 2 shows a regular guide. It will be seen that Fig. 1 lays almost flat at the top, clearing the screw head by half an inch. In running fine, kinky yarn this is very useful.

Very often when changing a frame from one cut to another the hold down cams will be tight or loose. When starting on light weight goods, if the cams are loose, the cylinder stitches push up the dial needles and will in all probability cause holes. Even when a frame has been running for some time, and holes occur, this cam is likely to be the cause, as it will wear in spots and if set too tight will catch and jerk around, making a rumbling noise. When this cam is smooth and set too tight it acts as a brake on the frame. Fig. 3 shows the cam very badly worn and certain to make trouble. The constant wear from dial needles hitting it at a certain place with the usual rub for half an inch or so is something that cannot be helped. The only remedy is to keep the bottom of the cams smooth.

Any knitter who has worked on a dial and cylinder that will not mesh never forgets it. It may be that the dial and cylinder are both cut wrong. I came across one of the dials and cylinders cut, I believe, 10 to the inch. The superintendent asked me one day to take a look at it. The frame was of the revolving take-up style with no chance to true the dial. This style was without set screws and sleeves in the hub, was drilled in the center so that if a spindle hub wore the dial did not run true. This dial was not true and I did

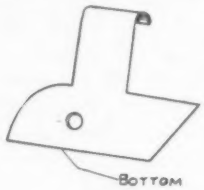


FIG. 2

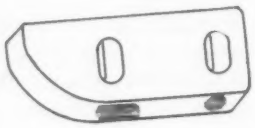


FIG. 3

not attempt to true it, but let it run ahead, the needles instead of the dogs carrying it would appear on the side where the needles rubbed together. There were about forty of these needles that would touch when other needles were about right. I bent the cylinder needles so that they came in the center when the dial was set in running position. The holes disappeared, but the wide wales from the tight needles were as bad as holes. I could not damage the cylinder any more than it was, so I filed out the slots on the side to allow the needles to run ahead and tried it again. A few holes showed up so I filed away more. This made the needles wobble around some, but made good work by reducing the speed.

The way I made the dial run true was something of a novelty. I have tried it a number of times since, but never succeeded. The dial was made by a machine company that did not make any other parts. They had left a 6 or 8 inch surface around the dial hole, while other firms only allow 2 or 3 inches. I took the dial out and found the surface was worn more in one spot than another. I filed away at this spot and then

smoothed it with emery cloth. The dial ran better, but was loose on the spindle. I filed off some more and set the dial cap tight on the dial, allowing the dial to turn, but not as freely as before. This seemed to remedy the trouble, but I cannot explain why.

A few years ago I made some split neckties. They were made on a regular frame, leaving out a needle at certain place, as mark for the cutter to split even. Wood fiber silk and China silk was used. When we started on the fiber silk we had all kinds of trouble. The face of the stitches looked like velvet with the cut fibers standing up straight. There were plenty of holes and the needles would load up for apparently no reason at all. I had begun to think that I knew nothing about knitting, until one day during a talk with a machine builder he mentioned the fact that a special machine was used for silk work, especially silk fiber. I had the needles made and good work was the result. I did not have to pull the take-up hard enough to take out all the elasticity from the goods.

A GARTER LOOP STOCKING

BY LIGNY

The illustration, Fig. 1, shows a stocking on which two loops are knit inside the welt, and which, to my knowledge, has never been done before. The object is to take the wear and tear of the garters from the welt. Fig. 2 shows the set of needles in a full fashioned machine to which a set of legs just completed are attached and which would usually be taken from the needles at this point. In order to form the loops the knitter would,

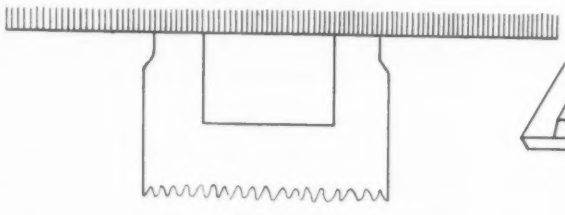


FIG. 2

without racking the machine, make a loose course and put in the welt bars. Fig. 3 shows a welt bar which is made of one strip of brass, drilled to hold the turned up butt of the welt hook and a longer bar of iron, the extended ends of which rest on a slide

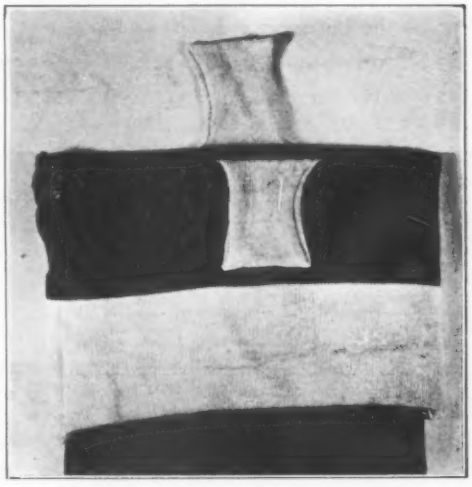


FIG. 1

which guides the bar with its hooks between the needles. The hooks go in beyond the

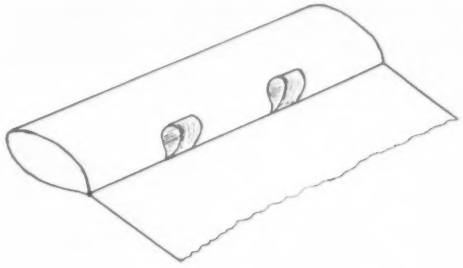


FIG. 9

needle shank as shown at Fig. 4, come in contact with the loop as it is brought down

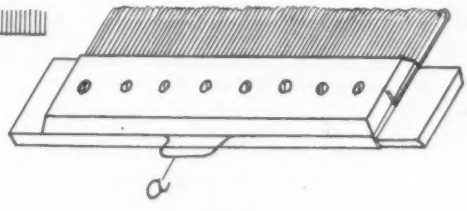


FIG. 3

by the lowering of the needle, and the bar is withdrawn until the loops are drawn tight in the hooks. A flat hook attached to a rubber strap, which again is fastened to a roller,

is slipped in at A, Fig. 3, and by the revolving of the roller the fabric is kept tight on the hooks. Starting up the machine at this point the knitter will knit two narrow strips, the width of the narrowed heel. When they are about 3 inches long the machine is stopped, the welt bars unhooked, the machine racked out to full width, and a loose course is made in the regular way as at the beginning of a set. Fig. 5 shows the side view of welt bar with loop strips and old set still attached. The bar is carefully picked up at this point and the hooks raised to the position shown at Fig. 6. The fabric is forced by this movement down the shank of the hooks, which are now free to be slipped in between the needles to catch the regular loose course, after which the welt is knitted to the desired length.

FIG. 4

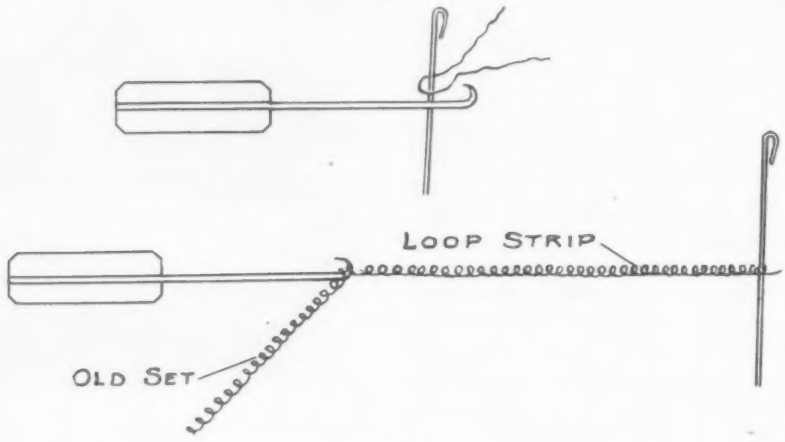


FIG. 5

Fig. 7 shows the position of welt bar with

FIG. 6

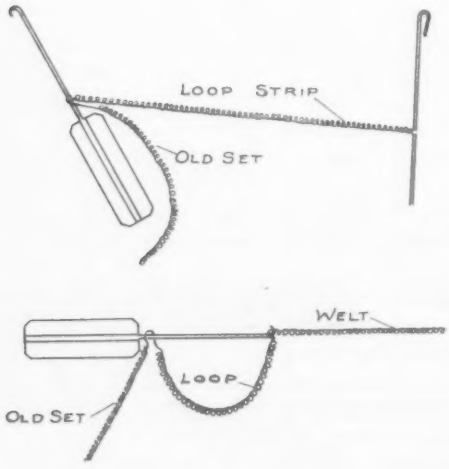


FIG. 7

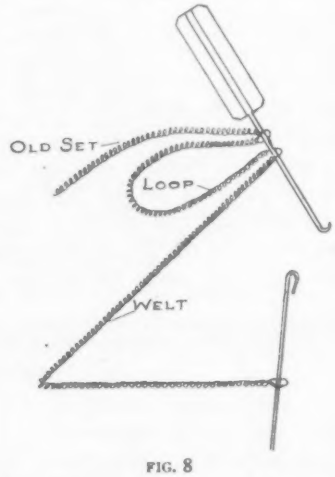


FIG. 8

the fabric, loop and old set still attached. The same movement is made here as at Figs. 5 and 6. Fig. 8 shows the welt bar with the hooks over the needles. By manipulating the bar the old set, loops and welt are easily transferred to the needles. After working an inch or two, the old set is trimmed with scissors by the knitter and the loops appear as at Fig. 9.

A DEVICE FOR LAYING CLOTH

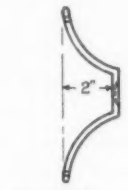
BY HAWICK

A very strong, serviceable cart for laying cloth on the cutting table is easily and cheaply made by using four grooved sewing machine pulleys, and two pieces of shafting, as shown at Fig. 1. A is the cutting table; B, the track; C, cleats, supporting track; D, grooved sewing machine pulley; E, shafting; F, two pieces 2 by 4; G, groove to hold rod; H, upright 2 by 4; I, brace supporting the upright. In making this device it is necessary to fasten some strips of iron about 1 1/2 inches wide and 3/8 inch thick, firmly to the cutting table with iron cleats, as shown at Fig. 2. This forms the track and should be set perfectly level. The cleats should be set so that the track will be about two inches from the table. The two pieces of shafting form axles, while the grooved pulleys are used as wheels.

Fig. 3 shows a shaft hanger. There is a collar placed inside of each wheel and one of these hangers are placed inside of the collar. The cart is made of two by fours, being made square or rectangular, as shown at Fig. 4. The body rests on the hangers and is held in place by long screws, A, Fig. 3.

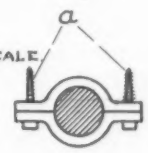
In laying the cloth, an iron rod about 1/2 inch in diameter is put through the center of the roll and is then rested in the groove as shown at G, Fig. 1. The cart illustrated will accommodate three rolls. The end of the cloth is then heavily weighted. The operator pushed the cart as far along the table as his work is to extend, then cuts the cloth, weighs it and resumes this operation until he has as many thicknesses as is desired.

FIG. 2



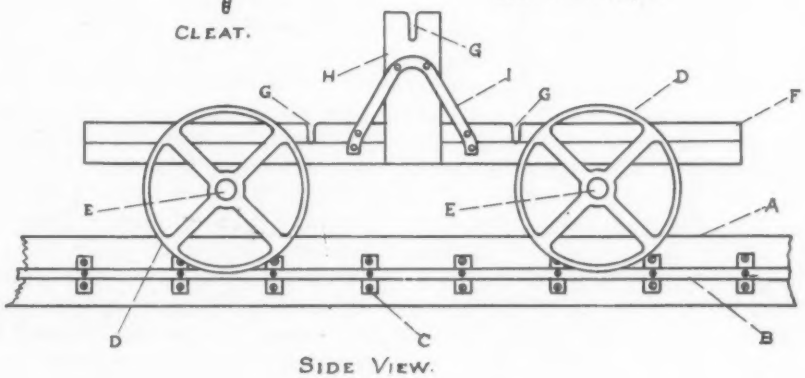
CLEAT.

FIG. 3

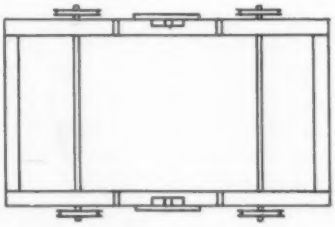


DETAILS - LARGE SCALE.

SHAFT-HANGER



SIDE VIEW.



TOP VIEW OF CART.
(1/2 SCALE OF SIDE VIEW)

FIG. 1

Dyeing, Bleaching, Finishing, Etc.

THE EMERGENCY USE OF LOGWOOD

BY DR. L. J. MATOS

The present dyestuff situation in this country is perhaps one of the most serious that has ever confronted dyers of any country. For years everything went smoothly, with reasonable supplies of dyes on hand in the warehouses of the importers and in the stock rooms of the mills. Now the entire trade is suddenly forced to take an inventory of the supply and to make every pound of dye go as far as possible. For several months it has been the general opinion that matters had been so adjusted that continued shipments would be received at regular intervals until the end of the war. Now word comes that shipments have been practically cut off.

Thus the dyer is brought face to face with a necessity of getting along with as little dyestuff as possible, and to make shift with what coloring matters he can lay his hands on, even with some of which he may be totally unfamiliar.

At the outbreak of the war, with the prevailing idea that dyestuff supplies might in time be threatened, there was prompt recourse to the dye receipt books of former times, and old formulas were brought to light and carefully studied. Articles were written describing the methods of dyeing with old-time dyes, and it seemed that, although there would be a reversion to first principles, yet with a little patience the dyer would be able to produce nearly the same shades with the old dyes as he was accustomed to get with coal-tar dyes.

It was curious to note, however, that the majority of the old dyes named in many recipes in current use in many mills as late as the early eighties and in some instances later, were entirely out of the market, being ever scarcer than some of the coal-tar dyes whose supply was threatened. Logwood was still obtainable, but many dyers of this generation do not know how to use this valuable dyestuff, and the same remark applies to both fustic and quercitron bark, not to mention flavine, which has again been brought into prominence. Equally interesting with these old-time dyes are the various mordants that must be used with them. Some confusion still exists as to the exact definition of some of the names applied to products that are now taxing the imagination of some dyers and chemists who are not familiar with the common chemicals of the dyehouse of fifty years ago.

Dyestuff houses and chemical jobbers were taxed to procure many chemicals of uncertain composition called for by many resurrected recipes, but matters are adjusting themselves gradually to the conditions existing, and it is believed that the skilled, practical dyer will suffer little difficulty in supplying to his customer the shades approximating those formally produced with the artificial dyes, except where fastness is an essential feature, and this will have to be overlooked for the time being.

Supplies of logwood while not over-plentiful, appear to be sufficient to enable woolen goods dyers to turn out a reasonably larger amount of well dyed cloth, not only for blues, but for blacks as well.

For dyeing 120 pounds of woolen piece goods a full blue black, the following mill recipe is recommended:—

Prepare a bath with the following chemicals:—

8½ lbs. crude tartar.
1½ lbs. bichromate of potash.
14 ozs. bluestone.
½ pt. oil of vitriol.

The chrome and the blue vitriol should be dissolved before adding to the dye bath. Enter the well scoured pieces at 120° F. Bring to the boil and boil for one hour, keeping the pieces in slow motion during the entire time. Afterwards lift and rinse thoroughly in order to einsure the complete removal of all traces of chrome, none of

which latter should be carried over into the dye bath for the reason that when excess chrome in the pieces comes in contact with the logwood of the dyebath, an insoluble lake is formed which does not contribute to the fulness of the shade, in fact causes a decided loss of good color.

The washed goods are entered into the dye bath prepared with:—

25 lbs. solid logwood extract.
½ pt. oil of vitriol.

Run the pieces for 3/4 hour to 1 hour at the boil, and finally rinse and finish. If the shade is not sufficiently blue in tone, it may be shaded by working for a few minutes in a fresh bath of water or even in the last wash water containing a small amount of ammonia.

A typical logwood blue is produced as follows:—

For 150 pounds of woolen cloth, boil for 2 hours in a bath containing

18 lbs. alum.
10 lbs. argols.
3¾ lbs. tin crystals.
¾ lb. oil of vitriol.

Afterwards allow the goods to lay over night, rinse well in the morning, and dye in a bath prepared with

15 to 20 lbs. logwood extract, according to the depth of shade, and
1½ lbs. sal soda.

There was at one time a formula in use for producing blues with logwood, in which both alum and bichromate of potash were employed, but no argols, allowing the wool to remain over night, and finally dyeing with logwood alone. The quantities of both these chemicals were 10 per cent. of alum and 1 per cent. of the chrome. Samples of cloth dyed by this method have been inspected recently and show a remarkable fullness of shade and clearness of tone. The dyeings were made over thirty years ago.

A so-called Dutch process for dyeing cloth with logwood various shades of blue was based upon a previous mordanting with 5 per cent. of sulphate of alumina, 4 per cent. of bichromate of potash, and 1 per cent. of blue vitriol. Mordanting progresses at the boil for two hours, then allow the goods to remain immersed for several hours, finally washing to remove all excess chemicals, and finally dyeing in a fresh bath prepared with a suitable quantity of both logwood extract and sal soda.

Logwood blacks on wool are always produced with the aid of a mordant of bichromate of potash, shading the logwood, however, with a little extract of fustic in order to kill the blue tone due to the logwood alone, and to aid in developing the great depth of black that the logwood is capable of. During the present emergency, the unsuccessful attempts to dye with logwood were found to be due to imperfect mordanting more than to any other cause. In most cases, too much mordant was used, with the result that the error of over-chroming followed, and consequently the color on the goods was imperfect and not of the proper tone. Too much chrome causes loss of color besides causing the fibers to become brittle.

If logwood is correctly dyed with the right proportion between the logwood and the bichrome and sufficient time allowed for fixing the chrome on the wool and for fixing the color of the logwood on the chrome, the final shade will be found to be fine in tone and full in depth, besides showing no tendency whatever to crock.

A typical black formula, when the proper balance exists between the mordant and the dye, is as follows:—

For 100 pounds of wool, mordant with

2¾ lbs. bichromate of potash.
3¼ lbs. cream of tartar.

Boil for 1 1/2 hours, lift and wash, or, as is the usual custom, mordant and dye in the same kettle, using the kettle also for the wash. Prepare the dye bath with:

12 lbs. logwood extract (solid) and
2 lbs. fustic extract.

This gives a clear, jet shade. Dye for one hour, then lift the goods and cool the bath by letting in a small amount of cold water, and add 1 1/2 pounds of blustone that has been first dissolved. Mix well, enter the goods and boil for 15 to 20 minutes longer to fix the color, and finally wash well and finish.

In dyeing with logwood, no difficulty need be anticipated, if proper regard is given to the conditions under which this dyestuff

works. It is not to be expected that the best results will be obtained the first time an inexperienced dyer attempts to use it. An old dyer who learned his trade when logwood and other similar dyes were all that were to be had, recently undertook to use it and found to his surprise and also to that of his employers, that he had to learn that part of his trade over again. Of course, it came back to him quickly, but he had a higher regard for "good old logwood" afterwards.

As soon as conditions again are normal, and fresh supplies of dyes are received the older methods will be abandoned, but the lesson learned will have made its impression, and the status of the dyer, due to the war conditions, will have elevated the dyer in the estimation of mill managements very materially.

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STEAMING AND DRYING MACHINE FOR TEXTILES

A German machine for steaming and drying textile fabrics, recently patented in this country, is shown in the accompanying illustrations. In his description of the apparatus the inventor states that a primary object is to provide improved steaming and drying apparatus for effectively finishing fabrics in which the steam generator of a steaming and drying table is connected with a steamer over which the web of fabric runs. The web comes in contact with a current of hot air which flows through a sieve from the interior of the container surrounding the steam generator. To enable the air to be uniformly mixed with and heated by the hot gases the steam generator is surrounded by a jacket which leads upward the hot gases which flow together with the air in the container through the wire sieve at the outlet of the container.

Figs. 1 and 2 are side and end elevations. The steaming and drying table comprises an arched flat-topped metal container, whose two end walls are provided with inlets for the outside air, and which contains a cylindrical steam generator. The steam generator may be heated by liquid fuel, gas or electricity. The steam generator is covered at one or both ends by panes of glass carried by circular mounts, which connect the generator with the end walls of the container.

The steam generator is surrounded at both sides by jacketing plates, which are turned inward at the top and deflect the hot gases rising from the pipe. Between these plates is a gap through which the hot gases pass upward together with the heated air which enters through the inlets, and then

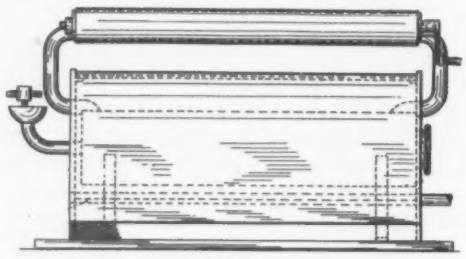

FIG. 1

pass out of the container through the finely perforated plate or sieve. The strainer which mixes the hot gases and air has arranged above it a steamer comprising a trough and an endless belt guided over two guide rolls, and the current of hot air is guided directly against the curved bottom of the trough and the lower side of the belt.

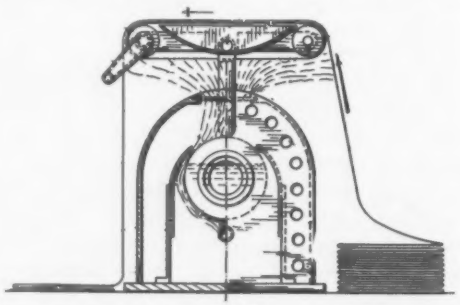

FIG. 2

The steamer proper is arranged above this wire sieve which covers the outlet of the container and can be closed by a perforated plate or similar means. This steamer comprises an open trough having a curved bottom and an endless belt, which is guided over the guide rolls mounted laterally on the trough. One of these rolls is provided with a crank-handle or a mechanical driving device. The fabric is led over the belt of the steaming and drying table in the direction of

the arrow. The steam passes through pipes into the trough, where it passes through the textile belt and enters into the fabric which is to be steamed and dried.

The current of hot air which flows out of the container through the sieve has a multiple action in that it flows against the lower side of the belt and evaporates the moisture. Part of the heat of this current of hot air directed against the belt is imparted, however, to the bottom of the trough, so that any water of condensation which collects is at once evaporated by this indirect heating and the fabric is steamed with steam which is as dry as possible. That part of the current of hot air whose heat is imparted neither to the belt nor to the trough, but is deflected toward both sides of the trough and against the fabric, serves, for preheating the fabric before it passes over the steamer and also for drying it after the steaming.

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SILICATE OF SODA IN DYEING COTTON

BY DR. ALDO BOLIS, MILAN, ITALY

The application of silicate of soda or soluble glass in textile industry is by no means a novelty, for it has already been employed with more or less success in many branches of textile treatments. In recent times it has, however, received greatly increased attention. It has been applied with little success in finishing cotton pieces, in silk weighting with better results, in waterproofing of textile fabrics, and in mordanting cotton either as direct mordant or as fixing medium for allumina, chrome and iron-hydrates. It has proved to be of very material assistance in several other uses, as, for example, in preserving cotton selvages in carbonizing.

Nevertheless the most remarkable property of silicate of soda, its cleansing action, received attention only recently for the treatment of textile fabrics. As a matter of fact soluble glass is an excellent cleansing material. It is one of the most important components of washing powders or cleansing lyes, and the best weighting material for soaps. When added to soaps, silicate of soda has the advantage of being itself a cleansing material instead of being an indifferent material, if not as dangerous as many others. Cotton bleachers have not infrequently considered the advisability of adding silicate of soda in the kiers, but satisfactory results have seldom been attained. The cleansing action of the lye is doubtless greatly enhanced, but the decomposition of the soluble glass on the fiber is a serious handicap. As a matter of fact, the rubbing of silicic acid on the cotton threads weakens the fibers, and makes the goods hard.

The physical and chemical conditions under which silicate of soda acts and decomposes ought, however, always to be considered. Silicic acid in crystalline form acts on the fibers very differently than colloidal silicic acid. The formation of one or the other of these two states of silicic acid depends upon (a) the temperature and (b) the acid or alkaline reaction of the solution.

The most unfavorable conditions occur in acid and hot lyes. It is in these cases that the crystalline form of silicic acid takes place; from an acid cold liquor only colloidal, a less dangerous silicic acid, is produced. The separation of silicic acid in crystalline form also take place from an alkaline solution after boiling, in consequence of hydrolytic dissociation. Sodium silicate consequently must be used very cautiously in boiling off cotton fabrics. It is to be recommended only when a shortening of this process is of special importance and a distinctly hard finishing of the pieces is required, as is the case with cotton goods for the China trade. A further study of that important question would be very interesting and it is to be hoped that some bleaching chemist will take up the work.

Silicate of soda can be employed with very good results in bleaching with the peroxides. Many producers of sodium peroxides have recommended its use in that operation which is always conducted in a cold or lukewarm bath. Silicate of soda and silicate acid, which under these conditions separates itself only in colloidal form, act simultaneously as cleansing agents and protect the fibers against a too energetic action caused by nasent oxygen. A short time ago, G. Dorr & Cy of Frankfort, O. M., Germany, discovered an interesting applica-

tion of silicate of soda in dyeing cotton. The chemists of that firm found that grey cotton hanks or pieces can be boiled off and dyed with direct dyestuffs in the same bath with silicate of soda. Soluble glass acts in that process as a substitute of Glauber's and common salt and a considerable saving of time is attained. The process is as follows:

Prepare a solution of silicate of soda, enter with cotton in the lukewarm bath, work for a short time, add the solution of dyestuff, raise slowly to a boil, boil according to the dyestuff employed, squeeze and rinse. The quantity of soluble glass varies from 10 to 30 per cent. of the weight of cotton. For light shades no other salt is required. For medium and dark shades, however, Glauber's salt or chloride of sodium must be added. Standing baths can be used, but not so extensively as with other methods of dyeing. I had occasion recently to make a few tests on this interesting method, and the results are of practical interest for cotton dyers. The tests were made on grey cotton hanks, 24s American middling, dyed with a few leading Diamine colors. One portion of the material was dyed by the usual method, the other with silicate of soda. The results were then compared.

Light shades were obtained as follows. The percentages are based on the weight of cotton: (a) Old method. Boiled in 5 per cent. solution of soda. Dyed with the proper quantity of dyestuff and 1 per cent. soda at 80° C., for an hour.

(b) Silicate method. Added 10-50 per cent. of soluble glass. Entered goods at 104° F. in dry state, worked for one-half hour, added dyestuff, brought up to boil in one-half hour, boiled another one-half hour, squeeze, and rinse.

The results of these tests are tabulated as follows:

½% Diamine Red 4 B.

Per ct. Silicate	Comparison with material dyed with the usual method
10	Lighter and slightly less brilliant.
20	Intensity almost equal. Red with a yellower, less bright tone.
30	Equal intensity. Duller red.

1% Diamone Red 4 B.

10	Equal intensity. Not so bright.
20	Equal intensity. Not so bright.
30	Equal intensity.

¾% Diamine Scarlet B.

10	Less intensity, equal brightness.
20	Less intensity. A distinctly duller tone.
30	Less intensity. A distinctly duller tone.

1% Diamine Yellow CP.

10	Almost equal intensity. More reddish tone.
20	Equal intensity. Less pure tone.
30	Equal intensity.

¾% Diamine New Blue R.

10	Almost equal intensity. Except with 30% silicate, tone and brightness are almost unaltered.
20	Almost equal intensity. Except with 30% silicate, tone and brightness are almost unaltered.
30	Almost equal intensity. Except with 30% silicate, tone and brightness are almost unaltered.

¾% Diamine Violet B.

10	Almost equal intensity. Almost equal brightness and purity.
20	Almost equal intensity. Yellower tone.
30	Almost equal intensity. Yellower tone.

¾% Diamine Black DN.

10	Almost equal intensity and brightness.
20	Almost equal intensity and brightness.
30	Almost equal intensity and brightness.

The lessened intensity of the shades obtained with silicate is noteworthy. In all probability it is due to the absence of Glauber's salt or common salt from the dyeing bath. The poor results with Diamine Scarlet is explained by the property of that dyestuff to dye in neutral bath.

Medium and dark shades were obtained as follows:

(a) Old method. Boiled up as in previous case, dyed with 1 per cent. soda, 15 per cent. Glauber's salt for an hour in boiling bath.

(b) Silicate method. Treatment as with light shades. The bath contains 20 to 30 per cent. silicate of soda and 7 per cent. Glauber's salt.

The results obtained are better than with light shades. With the dyestuffs already mentioned, shades of normal intensity are obtained with 3 per cent. dyestuff and 20 per cent. silicate. With 4 per cent. dyestuff, 30 per cent. silicate is required in order to give a normal intensity of the shade. The brightness and purity of the shades are equal except with Diamine Scarlet B, Diamine Yellow CP, Diamine Red 4B.

The German process seems also to be convenient for dyeing cheap articles with

direct dyestuffs. Dark and medium shades give better results than light.

One point, however, must be strictly considered in employing silicate of soda in that process. This salt must be entirely free from iron. Too great a quantity of free alkali is also dangerous, and .8 per cent. Na_2O should never be exceeded. The water should not be hard.

DYEING ARTIFICIAL SILKS

BY ERNEST C. T. BICK

Numerous attempts have been made to prepare artificial products which should have the properties of silk, but be capable of being produced at a lower cost, and of these artificial silks Chardonnet, viscose and cupro-ammonium silks are the ones which have been commercially successful. Chardonnet and viscose silks are the most important. Finer yarns usually consist of Chardonnet silks, while coarser thread is usually made from viscose. These two silks excel natural silks in brilliancy, but they have a harsher feel and cannot be scrooped as well as natural silks. Cupro-ammonium silks resemble natural silks somewhat in scroop and luster. As artificial silks are derived from cellulose it is to be expected that they will exhibit dyeing properties similar to those of the vegetable fibers. Chardonnet silks have a distinct affinity for dyestuffs of the basic class, so that they can be dyed without previously mordanting, if no special fastness is required.

The dyeing of artificial silks is very different from the dyeing of vegetable fibers. Artificial silks are dyed at 120° to 170° F. The yarn has to be handled very carefully. First of all it must be worked on very smooth sticks, or the thread will have a frayed appearance. To prevent this it is best to work the skeins on two glass sticks or tubes, which are about an inch apart and held together at each end by a clamp. The skeins are turned by hand. In bleaching artificial silks, the usual cotton methods may be used. The hypochlorite of soda method is the best. Peroxides can be used, but the skeins can be left in the bleach bath only a short time and there is much danger from tendering by overoxidation. When bleaching with hypochlorite of soda the material is first wet out at 160° F. in a bath containing soap and a small quantity of soda ash, then rinsed and immersed in the chlorine bath registering 1 1/2° Tw. Care must be taken not to leave part of the skeins exposed to the air too long while in this bath. The material is rinsed thoroughly and worked through a bath containing muriatic or sulphuric acid or anti-chlorine, and rinsed well. Care should be taken that there are no traces of chlorine left in the material.

In dyeing Chardonnet silk with basic dyes, it is as a rule unnecessary to mordant previously with tannin and antimony salts, except when special fastness to water, washing or acid is required. In dyeing Chardonnet silks with basic dyestuffs without mordanting, the dye bath is first charged with 5 to 10 per cent. acetic acid. Give the skeins several turns in this, throw up, add the dyestuff solution, reenter and gradually heat to 170° F. Viscose and cupro-ammonium silks are mordanted with 2 to 4 per cent. tannic acid and 1/2 to 1 per cent. muriatic acid for two to three hours at 120° F. and fixed in a bath containing half the amount of antimony salts as tannic acid used. The dyeing is done as described for Chardonnet silk. If it is desired to produce colors which will stand the action of acid in effect threads in woolen goods, the material can be treated after dyeing in the old mordanting baths, which have been replenished with two-thirds of the original quantities.

All the other methods of dyeing cotton are used in dyeing artificial silks, but it is necessary to add 1 to 2 per cent. sulphonated oil to the dye bath to increase penetration and soften the thread, preventing it from breaking. The temperature is kept below 170° F. When special fastness is desired, vat colors are used, or the shade is obtained by producing insoluble azo colors on the fiber. The latter method is of interest when it is desired to obtain a bright full red which cannot be produced with vat colors. When using this method, the hanks are padded, two pounds at a time in a receptacle containing an alkali solution of Naphthol

AS and turkey red oil. When a good sized lot, say 100 lbs., has been padded this way, the material is whizzed and two pounds at a time are padded in a diazotized solution of Fast G. A sample dyed by this process was not changed after two month's exposure to light and the fastness to chlorine and acids is even better than that of Alizarine Red.

There is a spun artificial silk on the market which is to imitate wool. The yarn contains a considerable amount of oil and has to be scoured before dyeing. As this material is used for carpets, the colors must be fairly fast to light. When using direct dyestuffs, a fast to light yellow, red and blue should be selected to dye mode shades and tans, after-treating with sulphate of copper if necessary. Colors obtained by this combination are as a rule faster to light than colors obtained by secondary and tertiary colors.

A CIRCULATING DYEING MACHINE

The illustrations show a dyeing machine recently patented, in which the dye liquor is forced through the material to be treated. Fig. 1, is a longitudinal sectional view; Fig. 2, is a transverse sectional view; Figs. 3 and 4, illustrate the change of conditions in the behavior of the material within the rotating cage, due to the reversal of its motion within the tank.

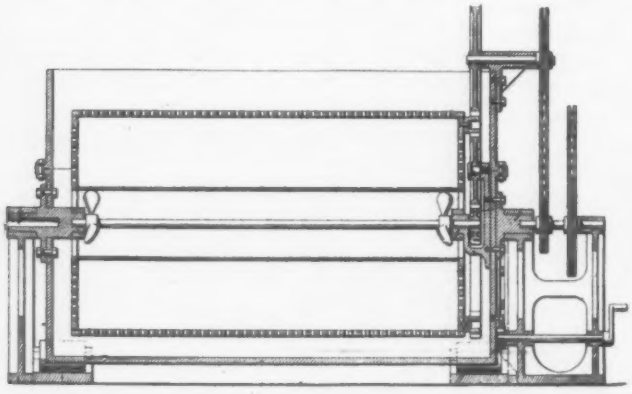


FIG. 1

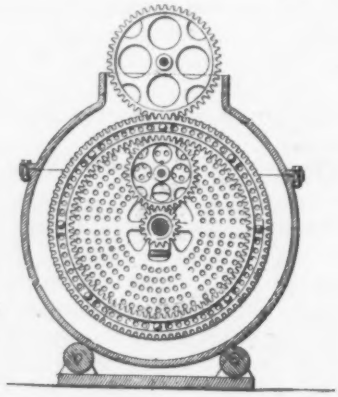


FIG. 2

The improvement consists in providing a supporting tank for the dye liquor, which is cylindrical in shape, with an opening in one side extending from end to end, through which the tank may be loaded or unloaded. This tank is rotated so as to place it in the most convenient position for unloading and loading.

Within the tank is a perforated cage formed with a central section providing a central chamber, in which oppositely disposed propellers are placed. This central chamber communicates with the tank through suitable openings in the end walls of the cage, so that the dye liquor may be drawn from the tank into the central chamber by the propellers, and forced outwardly through the inner perforated cylindrical section to all parts of the cage and through the outer perforated section, establishing a circulation of the dye liquor in and about the material. A rotation of the propellers in the opposite direction will cause the dye liquor to pass into the cage through the outer perforated parts thereof, and thence into the inner chamber and out through the end openings into the tank.

The mechanism for rotating the cage is connected through the open mouth of the tank, which obviates the extension of the operating shafts through stuffing boxes in the end walls of the tank. When the cage is rotating in the direction indicated by the arrow in Fig. 3, the material under treatment which is constantly immersed in the dye liquor, will lag and be packed or compressed more densely against the vertical partitions in the rear of the direction of rotation, as shown by the heavier shading.

The dye liquor as it is forced outwardly by the propellers lags backward. This results in a more open mass of goods on the opposite sides of these partitions, which facilitates the circulating of the dye liquor.

When the direction of rotation is reversed, as shown in Fig. 4, the conditions are exactly reversed and the portion of the compartment or pocket which was densely packed becomes relaxed and the material becomes packed or compressed against the opposite partition. This reversing of the

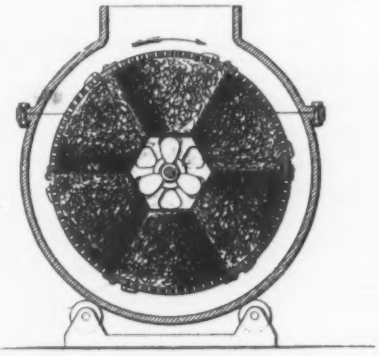


FIG. 3

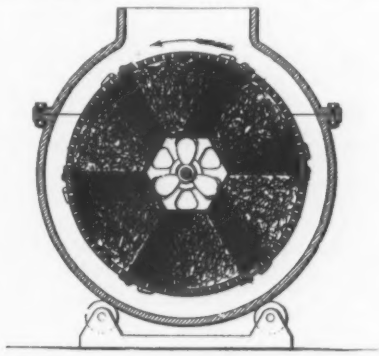


FIG. 4

direction of rotation and the shifting of the material from one side of the compartment to the other results in a spongelike action in regard to the taking up of the dye liquor. The materials are altenately relaxed and compressed, thus greatly facilitating the absorption of the dye stuffs. This compression and relaxation of the material also produces a change in the direction of flow of the dye liquor. When the propellers are rotating in the opposite direction and the dye liquor flows inward instead of outward, practically the same action occurs.

Wool is the most hygroscopic of all textile fibers, that is, its power to retain moisture is greater than any other textile fiber. The normal amount of moisture in wool is 16 per cent.—The Sheep and Wool Industry.

The net imports of hosiery into China in 1913 amount to 2,109,301 dozen valued at over $1,397,000, as compared with 1,345,959 dozen valued at $910,850 in 1912.

BLEACHING AND FINISHING CREPES

Editor Textile World Record:

Please give me some information regarding the bleaching and finishing of crepes.

Saginaw (2446).

I presume "Saginaw" wants to produce the crepe finish on the goods after they are bleached. This is a very difficult finish to get on cotton goods. The best way is to bleach the goods in the ordinary way and then try to produce the crepe finish after. This is done in about the same way as mercerizing, with the exception that the goods are passed through the caustic solution between 20° to 35° Be. without tention so that the crepe finish or crimping is shown to good advantage. It is necessary to have experienced help for this class of goods.

Crepe cloth should be bleached in a cold solution of hypochlorite of soda. After the goods are white enough they are washed and soured either in a bath of sulphuric or hydrochloric acid to neutralize the effect of the bleach. The great secret in finishing crepe is to restore after the bleaching and sizing the crimpy feel and appearance. Some bleachers adopt the method of passing the goods without tention over perforated steam pipes, face side up with a good blow of steam to raise the crepe effect after the goods are sized and ready for finishing. Some finishers pass the goods through an ordinary jigger without tention, in a solution of gum resin or resin soap and soda ash, the resin having a contracting effect on the material, and helping to produce the crepe effect on the goods.

"Saginaw" should try the different methods and adopt the one that suits him best, continuing his experiments until he gets the best possible finish on the goods. I would recommend to "Saginaw" a very good article that appeared in the October, 1914, issue. Dulcimer.

Crepes should be shrunk before they are bleached to give the crepy appearance. They are then tied into 100 to 140 yard lengths and boiled and bleached with as little handling as possible. After they are bleached the goods should be washed and blued in an open soaper with as little tension as possible. They are then finished on a tentering machine to the required width.

Parma.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 182

YELLOW ON SILK

New Azoflavine G N on 100 lbs. of silk. Prepare the dye bath with acidified boiled off liquor to which has been added

1 lb. New Azoflavine G N.
(Badische Co., 86 Federal St., Boston, Mass.)

Enter at 120°, bring to a boil and dye at a boiling temperature for one hour.

New Azoflavine G N gives very clear yellow dyeings, possesses good coloring power and will be found of value as a self color and for compound shades.

Recipe No. 183

YELLOW ON SILK

New Azoflavine R N on 100 lbs. silk. Prepare the dye bath with acidified boiled off liquor to which has been added

1 lb. New Azoflavine R N.
(Badische Co., 86 Federal St., Boston, Mass.)

Enter at 120° F., bring to a boil and dye at a boiling temperature for one hour.

New Azoflavine R N gives very clear yellow dyeings possessing good coloring power and will be found of value as a self color and for compound shades.

Recipe No. 184

YELLOW ON WORSTED YARN

Chrome Yellow S on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Chrome Yellow S.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
4 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter at 100° F. and raise slowly to a boil and boil about thirty minutes and then add

1½ lbs. Sulphuric Acid

and continue boiling 1/2 hour longer, to exhaust the bath. Cool bath to 160° F. Add

½ lb. Potassium Bichromate

and boil forty minutes.

Chrome Yellow S gives a desirable shade of yellow possessing very good fastness.

Recipe No. 185

SCARLET ON COTTON YARN

Benzo Fast Scarlet B B S on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Benzo Fast Scarlet B B S.
(The Bayer Co., 117 Hudson St., New York, N. Y.)
40 lbs. Glauber's Salt, Crystal.
2 lbs. Soda Ash.

Dye at a boil for one hour.

Benzo Fast Scarlet B B S possesses fastness which in general is very good for a direct cotton color.

Recipe No. 186

BROWN ON COTTON YARN

Alizadine Brown M Paste on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Bichrome.
2½ lbs. Cream Tartar.

Boil in the above bath for one hour, after which raise and enter into a fresh bath containing

3 lbs. Alizadine Brown M Paste.
(Read Holliday & Sons, 160 Franklin St., New York.)

Raise to a boil and boil for 1 1/2 hours. Alizadine Brown M Paste possesses excellent fastness to light and heavy milling. It can also be used in combination with other chrome colors to give a variety of shades or as a self color.

Recipe No. 187

VIOLET ON WORSTED YARN

Guinea Violet 4 B on 100 lbs. worsted yarn Prepare the dye bath with

2 lbs. Guinea Violet 4 B.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
2 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 160° F. and dye at a boil for one hour.

Guinea Violet 4 B will be found an excellent product for matching as well as for the production of self shades.

Recipe No. 188

YELLOW ON WORSTED YARN

Salicine Yellow A on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Salicine Yellow A.
(Kalle Color & Chemical Co., 530 Canal St., New York, N. Y.)
4 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter at 100° F., raise slowly to a boil and boil about 30 minutes and then add

1½ lbs. Sulphuric Acid

and continue boiling 1/2 hour longer, to exhaust the bath. Cool bath to 160° F. Add

½ lb. Potassium Bichromate

and boil forty minutes.

Salicine Yellow A gives a desirable shade of yellow possessing very good fastness.

Recipe No. 189

SCARLET ON COTTON YARN

Benzo Fast Scarlet 6 B S S on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Benzo Fast Scarlet 6 B S S.
(The Bayer Co., 117 Hudson St., New York, N. Y.)
40 lbs. Glauber's Salt, Crystal.
2 lbs. Soda Ash.

Dye at a boil for one hour.

Benzo Fast Scarlet 6 B B S possesses fastness which in general is very good for a direct cotton color.

Recipe No. 190

YELLOW ON COTTON YARN

Benzo Pure Yellow F F on 100 lbs. cotton yarn Prepare the dye bath with

1.5 lbs. Benzo Pure Yellow F F.
(The Bayer Co., 117 Hudson St., New York, N. Y.)
30 lbs. Glauber's Salt.
2 lbs. Soda Ash.

Dye at a boil for one hour.

Benzo Pure Yellow F F possesses high coloring power, and remarkable clearness of shade.

Recipe No. 191

VIOLET ON WORSTED YARN

Guinea Fast Violet 10 B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Guinea Fast Violet 10 B.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
2 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 160° F. and dye at a boil for one hour.

Guinea Fast Violet 10 B produces a violet of very good fastness which will be found excellent both as a self color and for shading purposes.

Recipe No. 192

YELLOW ON WORSTED YARN

Salicine Yellow R on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Salicine Yellow R.
(Kalle Color & Chemical Co., 530 Canal St., New York, N. Y.)
4 lbs. Acetic Acid.
10 lbs. Glauber's Salt.

Enter at 100° F., raise slowly to a boil and boil about 30 minutes and then add

1½ lbs. Sulphuric Acid

and continue boiling 1/2 hour longer, to exhaust the bath. Cool bath to 160° F. Add

½ lb. Potassium Bichromate

and boil forty minutes.

Salicine Yellow R gives a desirable shade of yellow possessing very good fastness.

Recipe No. 193

BROWN ON COTTON YARN

Katigen Red Brown R K on 100 lbs. cotton yarn. Prepare the dye bath with

15 lbs. Katigen Red Brown R K

dissolved with

15 lbs. Sodium Sulphide, Conc.
(The Bayer Co., 117 Hudson St., New York, N. Y.)

and added to the main bath which has been made up with

8 lbs. Soda Ash.
40 lbs. Common Salt.

Boil up dye bath, cool a few degrees and dye at a temperature just below the boil for one hour.

Katigen Red Brown R K possesses fastness to washing, and its fastness in other respects is good.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Latch Needle Sweater Machine. The Tompkins Bros. Co., Troy, N. Y. have recently placed on the market an improved latch needle rib sweater machine, which is described in another part of this issue.

Size Kettle. The Saco-Lowell Shops, Lowell, Mass. An improved kettle for mixing and boiling size preparations and which is described in another part of this issue.

Power Stick for Looms. The Lyon Manufacturing Co., Fitchburg, Mass., are putting on the market the "Marvel" power stick for Crompton and Knowles looms to take the place of the lug strap and power strap. With use of this stick it is claimed that the necessary power can be regulated to a very fine point and it does away with the wear on the sweep strap and power strap.

Fireproofing Process. The Edwards Mfg. Co., Cincinnati, O. A process of fireproofing textiles and other materials. Samples of various fabrics treated with this process can be seen at our Boston office.

Improved Loom. Robert Hall & Son, Bury, Eng. A loom for weaving heavy cloths such as overcoatings and army goods. It has no crank shaft or crank. The slay is operated by a tappet or cam on the side shaft. No picking sticks or picking tappets are used, the shuttle being driven by a spring mechanism.

Cutting Cylinder for Shears. W. Fearnehough, Ltd., Sheffield, Eng. An improved cylinder for cloth shears.

Self Feed for Cotton Openers. J. Hetherington & Sons, Manchester, Eng. A self feed for cotton openers and stretchers, embodying a number of improvements, the result of long experience with self feeds.

Shoddy Machine. The Snowden Fiber Machine Co., London, Eng. An improved machine for picking rags, the picked stock being delivered from the machine by three separate aprons.

Shearing Machine for Woolens. Sellers & Co., Huddersfield, Eng. An improved four-cylinder shearing machine for wool goods. It is claimed to have a production of 23 yards per minute or four times that of the single machine.

Card Feed. Oscar Schimmel & Co., Chemnitz, Germany. A double card feed by which the material is delivered on two separate aprons and reaches the main cylinder through separate sets of feed rolls.

Weaving Horse Hair. Gebrueder Schriever, Dresden, Germany. An improved loom for weaving cloth with horse hair filling.

Circular Knitting Machine. Paul Sanger, Chemnitz, Germany. A circular knitting machine which is especially adapted for the production of fancy effect. It has been successfully tested in a number of German mills.

Finishing Pile Fabrics. F. Shaw, Middleton, Eng. An improved machine for brushing velvets to raise and straighten the pile.

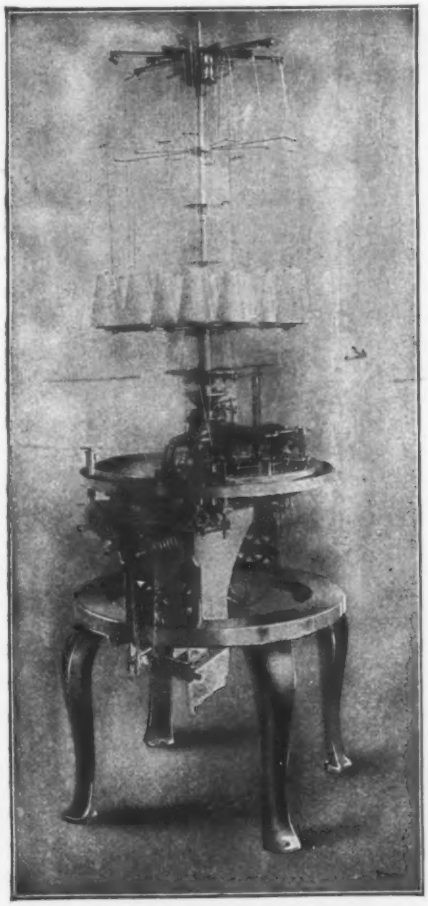
A Knock-Off for Looms. A. Marsden, Nelson, Eng. An improved device for stopping the loom when the shuttle fails to enter the box.

Loom Picker. J. P. Borthwick, Leeds, England. A loom picker of improved construction which has been perfected in Leeds mills.

Electric Drive for Spindles. Hartmann & Braun, Frankford, Germany. A device for driving individual spindles by electric power.

A LATCH NEEDLE RIBBED SWEATER MACHINE

The accompanying illustration shows the general arrangement of the new latch needle ribbed sweater machine recently put on the market by the Tompkins Bros. Co., Troy, N. Y. This company has carried on the



THE NEW LATCH NEEDLE RIBBED SWEATER MACHINE

manufacture of knitting machinery without interruption for 69 years. Although the latch needle end of the business is a new line for them they have in their new machine upheld the tradition of the firm for turning out an accurate, efficient and well finished article. The construction involves many new and ingenious principles which have enabled them to produce on the same machine fabrics for which it has heretofore been necessary to use three different machines.

The machine is designed to knit plain, tuck and rack stitches, and is equipped with stripers and separating course attachments and also has tightening and loosening devices, by which it is possible to get stitches of three distinct lengths. The machine has been thoroughly tried out for the past three years in the plant of N. J. Rich & Co., Cleveland, O., where a complete range of sizes has been in daily operation. The basic principles of the machine as well as many of the individual features are covered by patents and several other patents have been allowed and others are pending.

It is the intention of the manufacturers to have this machine in operation at the convention of the National Association of Hosiery and Underwear Manufacturers to be held in Philadelphia during the first week of May, at which time parties interested in the manufacture of sweater fabrics will have an opportunity to see it working under mill conditions.

A NEW FIREPROOFING PROCESS

A process for fireproofing textiles and other materials which has been subjected to the

GIRL SUBMITS TO FLAME TEST. REMARKABLE DEMONSTRATION OF FIREPROOFING COMPOUND

severest tests, is controlled by the Edwards Mfg. Co., Cincinnati, O., who claim that it is suitable for fireproofing all kinds of mate-

rials from a lace curtain to a hardwood floor. Among the other claims are that it has no odor, will not spot or affect the color of goods. It has been used on silk, satin, velvet, plush, carpets, draperies, bed linen and other materials, and goods treated with it cannot be ignited by a blow torch. Samples of the treated materials can be seen at our Boston office, and tests of these samples substantiate the claims made for the process. Further information regarding the method of application and other particulars can be obtained from the Edwards Mfg. Co.

AN IMPROVED SIZE KETTLE

The illustration shows the improved size kettle built by the Saco-Lowell Shops, Lowell, Mass., and which is a valuable aid in the important work of preparing size solu-

THE SACO-LOWELL SIZE KETTLE

tions. Good size can be obtained only by careful mixing and boiling, and the Saco-Lowell kettle has been designed to accomplish this result. The kettle is made of cast iron and provided with a power-driven stirrer. The kettle is built either with or without a steam jacket and is made in four sizes:

32 in. x 32 in. holding 110 gals., weighing 900 lbs.
36 in. x 36 in. holding 158 gals., weighing 1,200 lbs.
42 in. x 42 in. holding 250 gals., weighing 1,600 lbs.
48 in. x 48 in. holding 360 gals., weighing 1,800 lbs.

Further information can be obtained from the builders.

LIQUID SOAP FOR FACTORY USE

Where free soap is furnished to the employes by the mills for washing up, it amounts to a considerable item in the course of the year. Moreover the modern trend toward sanitation has pronounced the soap cake a back number.

Everyone is familiar with the liquid soap outfit which is installed in most hotels and public buildings. Many of the larger mercantile establishments and factories have also adopted it. The Westinghouse Air Brake Co. has 553 Antiseptol liquid soap fountains in their plant; the Pullman Co. has 330; the International Harvester Co. has 276; the Sauquoit Silk Mfg. Co. has 50. The saving is considerable. The Seston Mfg. Co. made a saving of $125 the first year they used the Antiseptol system. Formerly their cake soap cost them $425.

A FOUNTAIN OR CONTAINER INSTALLED OVER A WASH BASIN

The illustration shows the fountain or container installed over a wash basin. It is so constructed that it cannot be manipulated to flow continuously. Each discharge is measured and sufficient for a wash. It is practically fool-proof and thoroughly practical. It has a locked top and is built to stand up, giving the utmost satisfaction with hard usage.

The Antiseptol liquid soap contains an antiseptic sufficiently strong to destroy ordinary germ life. It is a better cleansing fluid than the ordinary cake soap and has no disagreeable odor, being made of pure edible cocoanut oil, the very finest oil used in the manufacture of soap in any form.

Experience has demonstrated that the Antiseptol system is not only more sanitary and efficient than cake soap, but it is also more economical, particularly for the large consumer who gets the benefit of the best quantity prices. The equipment is supplied either on a rental basis at a very moderate price per fountain or is sold outright.

References are made to hundreds of concerns who are using it to advantage. Those who wish to experiment without cost are invited to inquire as to the special trial offer made to factory owners.

PREPARING FLAX OR HEMP FOR SPINNING

A process for preparing bast fiber such as flax or hemp for spinning has recently been patented in this country and is described as follows: Such fibers contain certain carbohydrates known as pectose and similar substances, the presence of which in their natural state interferes with the spinning qualities of the fibers. It is necessary in order to put the latter in proper condition for spinning to subject them to treatment by which the objectionable matter is either removed or so altered as to be no longer detrimental, the precise character of the changes effected not being fully understood. The usual treatment consists in what is known as a retting process which as generally carried out hitherto and known as the natural retting process consists in either submitting the raw material to the natural elements on grassy ground or in immersing it in water for a considerable period under certain definite conditions. As a result of this treatment, the objectionable matter becomes partially dissolved and softened or otherwise altered so that it may be readily washed or otherwise removed to a greater or less extent leaving the fiber in proper condition for spinning with substantially its original strength preserved.

The new process is a substitute for the so-called natural treatment and is especially adapted to flax fibers. By introducing into the fibers nitrogenous material of a certain character under suitable conditions it is possible to reproduce the effect of natural retting on fiber, securing an equal, if not superior, result and very materially reducing the time required for treatment. Milk casein is used as the albuminoid or nitrogenous substance, which when decomposed either by a suitable reagent or by putrefaction yields amido acid or fatty substances, such as glycocol, leucin. These products of decomposition of nitrogenous matters are especially effective in producing the desired solvent or other action upon the gummy, pectose and other matters of which it is desired to free the fiber, and at the same time they do not produce the weakening and other ill effects of many or all of the solvents which it has heretofore been proposed to use in place of the natural retting process. The essential property of fibers which enters into and affects the spinning of the same known as nature is improved by the new process and the dyeinng properties of the fiber are also improved.

The nitrogenous material may be prepared in a variety of ways. Good results may be obtained by allowing the albuminoid or other nitrogenous substances to ferment or partially putrify before employing them in the treatment of fiber. The solution for treatment of the fiber may contain about two per cent. casein and two per cent. sal soda, varying the proportions somewhat according to the fiber to be treated, and using enough water to cover and permeate the fibrous mass. For a good high grade fiber the material is subjected to a number of treatments in such solutions and the fibrous mass is thoroughly washed out in water and carefully dried. Other alkalis may be used in place of sal soda, such as for example caustic soda, although the strength is not quite as good as when the preferred reagent is used. For the best results the fiber previous to its treatment with albuminoid or nitrogenous substances is subjected to an alkali treatment, for which sodium carbonate or sal soda is satisfactory. When this method is adopted a hot solution of the alkali is used, which in the case of sal soda may be saturated or of a less strength, and the fiber boiled therein for about one hour with or without the addition of a small percentage of casein to the solution. After the alkali treatment, the fiber is removed, drained and in-

troduced into a solution of casein dissolved in a small amount of sal soda. For this purpose the proportions above specified, i. e. 2 per cent. casein and 2 per cent. sal soda, have been found effective though they may be widely varied, according to the fiber being treated.

A WET SPINNING MACHINE

An improved machine for spinning yarn in the wet state has been recently patented in this country and is described as follows: Fig. 1 is a sectional view of the machine; Fig. 2 is a perspective view of the trough for the excess liquid extracted from the thread; Fig. 3 is a perspective view of a combined check-

FIG. 3

FIG. 1

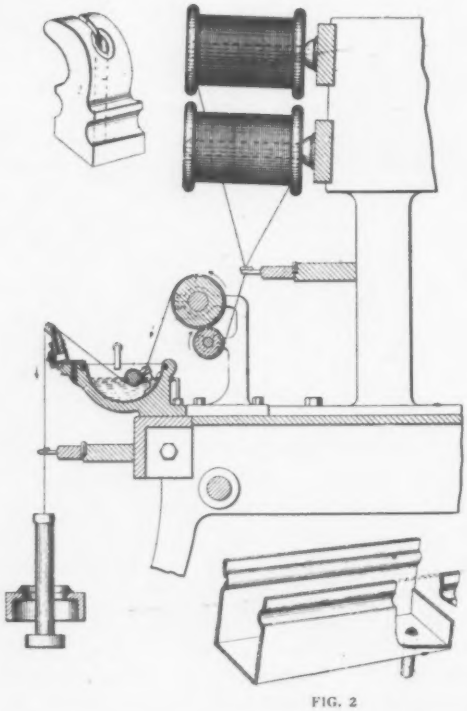


FIG. 2

ing and guiding block cooperating with the trough to conduct the excess liquid to it.

The feed roll is placed on the dry side of the wetting trough and a receptacle is provided in addition to the wetting trough for the excess water. The thread is drawn from the spools through suitably supported eyes, passed under a lower feed roller and up and around an upper feed roller. Suitably supported on the frame forwardly of the feed rolls is a wetting trough having a removable lining. Mounted within the trough at the edge adjacent to the feed rolls and extending lengthways of the trough, is a glass or porcelain guide rod. This rod is within and below the trough with its under face below the water level. A supporting bracket set outside of the trough is provided, a convenient method being to extend the far edge of the trough to form a support for a bracket. An excess liquid receptacle in the form preferably of a metal trough extending substantially the length of the wetting trough and the guide. This receptacle has its end closed by shallow walls and is provided with a draw-off. The sides of the trough are corrugated to form guiding tongues. The trough being of metal, affords a slight spring action at its upper ends where these tongues are located, so that the thread guiding blocks may be held between the sides of the trough. These blocks are provided with grooves complemental to the tongues, the thickness of the blocks being such that they may be forced longitudinally of the trough, the tongues thereof having a friction tight engagement in the grooves. These blocks are of porcelain, although other materials may be used, and have their inner faces rounded in the direction of the guide.

SMALL MAZDA LAMPS WITH CONCENTRATED FILAMENTS

The distinctive features of the concentrated filament Mazda lamps of high wattages have proved so popular that the Edison Lamp Works of the General Electric Company has developed vacuum Mazda lamps of similar appearance in the 25, 40 and 60 watt sizes. This concentrated filament construction gives greater vertical distribution of light than the regular Mazda lamps of corresponding wattages. The new lamps will, therefore, be employed where natural distribution of light downward is required. They can be used in existing sockets and fixtures.

These lamps will be made in the same sized bulbs as the corresponding regular Mazda lamps, will have the same spherical watts per candlepower efficiency and will have a rated average life of 6000 hours.

Personals

W. S. Taylor has resigned his position as overseer of finishing at the Dustin Island Woolen Mill, Penacook, N. H.

Edward Farrell has been appointed superintendent of the Hillsboro Cotton Mills, Hillsboro, Texas. He was formerly employed at the Itasca Manufacturing Co., Itasca, Texas.

J. E. Harrison, superintendent of the Utica Knitting Co., Utica, N. Y., has resigned his position with that company. He had been in the employ of this company for fifteen years.

Clarence E. Benson, for a number of years superintendent of worsted drawing, spinning and finishing at the Arlington Mills, Lawrence, Mass., has been appointed superintendent of the Booth Manufacturing Co., New Bedford, Mass.

Herbert V. Martin has been appointed superintendent of the Cutler Mills, Warren, R. I. He formerly held a similar position at the Greylock Mills, Williamstown, Mass.

Cornelius P. Lowney has been appointed overseer of ring spinning at the May's Landing Water Power Co., May's Landing, N. J. He was formerly employed in New Bedford, Mass.

M. A. White has accepted the position of overseer of carding at the Neely Manufacturing Co., Yorkville, S. C. He was formerly employed at the Lockmore Mills, Yorkville.

W. J. Nichols has been appointed superintendent of the Griffin Manufacturing Co., Griffin, Ga. He was formerly employed by the Consolidated Cotton Duck Co. of Baltimore, Md., as general superintendent and resigned that position some time ago.

R. A. Hughes has accepted the position of overseer of carding, spinning and winding at the Durham Hosiery Mill No. 7, Chapel Hill, N. C.

E. R. Crosby has accepted the position as night overseer of weaving at the Jackson Mills, Monroe, N. C., to succeed J. W. Reed.

J. F. Pruitt has accepted the position of overseer of spinning at the Marlboro Mills, No. 1 and 2, McColl, S. C.

James Newton, a manufacturer of tapestry in Frankford, Philadelphia, Pa., died at his home in that city of pneumonia at the age of 57 years. He had been a resident of that section for the last thirty years and was a member of several fraternal organizations.

S. J. Mowray, formerly superintendent of the Garner Print Works and Bleachery, Wappinger's Falls, N. Y., has resigned his position with that company to accept a similar one with the Southbridge Printing Co., Southbridge, Mass., to succeed Raymond A. Rice. Mr. Rice has been appointed general manager and treasurer of the company.

John Collie has resigned his position as superintendent of the South Bend Woolen Co., South Bend, Ind.

Harry Wayall has reentered the employ of the Russell Manufacturing Co., Middletown, Conn., as overseer of dyeing. He formerly held a similar position with the R. B. Mason Co., Pawtucket, R. I.

Timothy Brophy, who formerly operated the Kensington Dye Works of Philadelphia, Pa., celebrated the fiftieth anniversary of his wedding at their home on Huntingdon St. Mr. Brophy, who is 84 years of age, and his wife, 79 years of age, were surrounded by their six children, twenty-one grand children, two great grandchildren, several nieces and nephews. Mr. Brophy retired from active business life some years ago and the business is now conducted by John J., Francis H., and Thomas A. Brophy. A. B. Brophy is in the custom service and William F. Brophy is a rug manufacturer of Philadelphia.

Andrew J. Currier, agent of the Nonquitt Spinning Co., New Bedford, Mass., has been appointed agent of the Warren Manufacturing Co., Warren, R. I.

A. Wells, designer and assistant superintendent of the South Bend Woolen Co., South Bend, Ind., has been appointed superintendent.

Channing Souther has been elected treasurer of the U. S. Worsted Co., to succeed John Simson. Mr. Simson has been appointed vice-president of the company. They operate mills at Lowell and Lawrence with head office in Boston.

John J. Heffernan has reentered the employ of the Lymansville Co., Lymansville, R. I., as superintendent. Mr. Heffernan has recently been connected with the Smithfield Worsted Mill of Greenville, R. I. He succeeds Robert Smithers, who has been appointed general manager of the Danielson Cotton Co., Danielson, Conn.

John A. Fernley, who terminated his services as superintendent of the Bristol Manufacturing Co., New Bedford, Mass., was the guest of honor at a dinner held at the Parker House, in that city, by the overseers and second hands of the mill where he was employed.

William T. Joyce, for the past six years superintendent of the Allendale Worsted Mill, Allendale, R. I., is now superintendent of the Lion Yarn Co., Philadelphia, Pa.

John L. Burt, for the past fifteen and a half years employed at the Renfrew Manufacturing Co., Adams, Mass., has resigned his position with that company. His position was that of bookkeeper and paymaster.

Moses Buck has accepted the position of overseer of weaving for Charles A. Stevens & Co., Ware, Mass. He comes from Lewiston, Me., and succeeds James Callahan.

Carl Hager, overseer of dyeing at the Atlantic Mill,, Providence, R. I., has resigned to accept a similar position with the Hamilton Woolen Co., Globe Village, Southbridge, Mass., to succeed Wilson Sharp.

Charles I. Keegan, overseer of dyeing at the Akela Mill, Pascoag, R. I., has resigned his position, after several years of service.

Nicholas Hanley, overseer of carding at the Jefferson Manufacturing Co., Jefferson, Mass., has resigned his position with that company to accept a similar one with the Thayer Woolen Co., North Oxford, Mass.

Michael McCurn has accepted a position as overseer of carding at the Jefferson Manufacturing Co., Jefferson, Mass. He was formerly employed at the Darling Woolen Mill Co., Hollliston, Mass., but later with the Oak Valley Mill, Tarkiln, R. I.

Lucius L. Belden, overseer of the cloth finishing department at the B. B. & R. Knight Mill, Natick, R. I., has severed his connection with that company after fourteen years of service.

Jason Libby has been appointed overseer of spinning at the Ray Mill, American Woolen Co., Franklin, Mass., to succeed John Archer.

Percy Musgrave, overseer of dyeing at the Josiah Perry Estate, Webster, Mass., has resigned his position with this company. He is succeeded by Thomas Smith, who was formerly employed by the Daniels Worsted Mill, West Rutland, Mass.

Joseph C. Knight, overseer of finishing at the Greene & Daniels Co., Inc., Pawtucket, R. I., has resigned his position with that company after nineteen years of service. The help in his department presented him with a cut glass water set and a dress suit case as a token of the esteem in which he was held.

W. F. Honeycutt has accepted the position of overseer of spinning at the Dunn Manufacturing Co., Gastonia, N. C. He was formerly employed at the Clara Mill, same city, in a similar capacity.

C. C. Stevenson has accepted the position of overseer of weaving at the Equinox Mills, Anderson, S. C. He was formerly employed at the Fountain Inn Manufacturing Co., Fountain Inn, S. C.

W. W. Halley has accepted the position of overseer of the cloth room at the Eureka Mills, Chester, S. C.

O. J. Perkins, overseer of weaving at the Readville Cotton Mill, B. B. & R. Knight Co., Hyde Park, Mass., has resigned his position with that company.

Joseph Schneidler has been appointed second hand in the quilling department at the Renfrew Manufacturing Co., Adams, Mass.

Henry E. Gaines, for the past three years in the employ of S. Slater & Sons, Inc., Webster, Mass., has secured a position as overseer of the weaving department at the German-American Mill, Draper, N. C.

Walter S. Irwin, overseer of weaving at the Puritan Mill, American Woolen Co., Plymouth, Mass., has resigned his position after fifteen years of service.

James S. Bradbury, overseer of carding at the Killingly Manufacturing Co., Killingly, Conn., has resigned his position with that company.

William J. Carrigan, overseer of the cloth department at the Globe Mill, Manville Co., Woonsocket, R. I., has resigned his position with that company after eighteen years of service.

Frank Pace has been appointed overseer of the cloth room at the Merchant Mill, Dominion Textile Co., Montreal, Canada. He comes from Holyoke, Mass.

Matthew Tait, overseer of weaving at the Saranac Mill, Blackstone, Mass., has resigned his position with that company.

Arthur Phillips has secured the position as overseer of weaving at the Saranac Mill, Blackstone, Mass. He comes from Glendale, R. I.

Walter E. MacClure has accepted a position as overseer of dyeing at the Akela Mill Pascoag, R. I. He was formerly employed as second hand of dyeing at the Bay State Mill, American Woolen Co., Lowell, Mass.

Edward Netherland has accepted the position of overseer of carding at the Cochran Mills, Cochran, Ga.

G. E. Foster has accepted the position of overseer of the cloth room at the Huntsville Mill, Huntsville, Ala. He was formerly employed at the Massachusetts Mills, Lindale, Ga.

W. M. Smith has been promoted to the position of superintendent of the Cohannett Mill, Fingerville, S. C.

J. D. Watkins has accepted the position as overseer of spinning, winding and twisting at the Prendergast Cotton Mill, Prendergast, Tenn. He was formerly employed at the Warioto Cotton Mill, Nashville, Tenn.

J. W. Blakley has accepted the position of second hand of weaving at the Selma Manufacturing Co., Selma, Ala., to succeed W. T. Meeks.

Charles Skidmore has been appointed night superintendent of the Tuscarora Mill, Mt. Pleasant, N. C.

George H. Stone has accepted the position of master mechanic at the John E. Smith Manufacturing Co., Batesburg, S. C.

Thomas Shealey, overseer of the cloth room at the Middleburg Mills, Batesburg, S. C., has resigned. He is succeeded by C. F. Geddings.

V. B. Bogan has accepted the position of overseer of weaving at the Fountain Inn Manufacturing Ct., Fountain Inn, S. C.

Sidney Enloe has accepted the position of overseer of carding at the Lockmore Mills, Yorkville, S. C.

Vernon McLeod has accepted the position of overseer of carding and spinning at Mill No. 3, Lancaster, S. C.

E. C. Seymour has accepted the position of master mechanic at the Star Thread Mills, Athens.

G. Herbert Windeler, of Patterson, Wylde & Co., Chauncey St., Boston, has been appointed Boston agent of the Textile Alliance, Inc. He will have charge of the Boston office of the alliance soon to be established for the facilitation of the import of British and Colonial wools. This arrangement was made with the Textile Alliance by the British Government. The announcement of Mr. Windeler's appointment was made by the secretary of the National Association of Wool Manufacturers. He will have the oversight of all wool imported to this port from Great Britain.

The following changes were made at the American Hosiery Co., New Britain, Conn., and were approved by the directors and stockholders at their annual meeting: George F. Dodd was elected vice-president of the sales department and Martin K. Pasco, vice-president of the production department. Mr. Dodd was for twenty years with the sales department of the American Hosiery Co. in New York City and Mr. Pasco has been employed at the Oakes Knitting Co., West Roxbury, Mass., for the past two years.

Henry E. Kirk, for the past four years superintendent of the woolen and worsted department of S. Slater & Sons, Inc., Webster, Mass., has tendered his resignation. It is reported Mr. Kirk has accepted a position as superintendent of the Wanskuck Mill, Providence, R. I.

James Fairbrother has accepted the position of overseer of carding at the Glengarry Mill, Plainville, R. I., to succeed John P. McDonald. George S. Doherty succeeds Percy Gray as overseer of spinning at the same mill.

Willard Steere has accepted a position as overseer of the cloth department at the Globe Mill, Manville Co., Woonsocket, R. I. He comes from Bernon Mill, Georgiaville, R. I.

William J. Carrigan has accepted the position of overseer of the cloth department at the Grosvenordale Co., North Grosvenordale, Conn. He was formerly employed at the Globe Mill, Manville Co., Woonsocket, R. I.

John F. Kilclinine, Jr., has accepted the position of overseer of dressing at the Lippit Woolen Co., Woonsocket, R. I., to succeed Frank J. McCauley.

Edward M. O'Donnell, overseer of dyeing at the Cowan Woolen Co., Lewiston, Me., has resigned his position with that company.

John F. Leonard has accepted the position of overseer of dyeing at the Cowan Woolen Co., Lewiston, Me.

DEATHS.

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John Moseley, senior partner of John Moseley & Co., manufacturers of full fashioned and ribbed underwear, Needham Heights, Mass., died at his home in Needham, Mass., at the age of 66 years. He leaves a wife, two sons and a daughter.

Alembert O. Crosby died at the St. Francis Hospital, Hartford, Conn., February 24. Mr. Crosby was president of the Crosby Manufacturing Co., East Glastonbury, Conn., for a number of years before the mill was sold to the Park Mfg. Co. He was born in Glastonbury on April 24, 1848, and received his education from the public schools in Glastonbury and Wilbraham Academy at Wilbraham, Mass. After being employed for a number of years in mills in Windsor, Meriden, Waterbury and Rockville, Conn., he returned to his father's mill at East Glastonbury and took up the position of overseer of weaving. He was afterwards appointed superintendent. He retired from active business life some years ago. His wife survives him.

Walter Ward died at his home in Providence, R. I., at the age of 68 years. Mr. Ward was born in Bradford, Eng., and learned the worsted business early in life. Thirty-three years ago he came to the United States and took up a position in mills in Philadelphia, Pa., later in Lowell, Mass., and then in Camden, N. J. He came to Providence twenty-six years ago, to superintend the Riverside Mill which was owned at that time by the Chapin interests. When the American Woolen Co. bought this mill, Mr. Ward was appointed agent and held the position until eleven years ago when he retired from active work. He is survived by a wife and one daughter.

Buell Heminway, 77 years of age, died at Atlantic City, N. J., after a brief illness. He was born April 20, 1838. After the death of his father the firm of Heminway & Bartlett Silk Co. was organized with Mr. Heminway as president and treasurer. In addition to his extensive manufacturing interests, Mr. Heminway was interested in the banking business, being vice-president of the Dime Savings Bank of Waterbury, and a director of the Citizen's National Bank.

Franklin M. Train, 61 years of age, died of pneumonia at his home in Franklin, Mass. Mr. Train was engaged in the silk business and owned a mill at Newton Upper Falls, Mass. He is survived by his wife and daughter.

Thomas H. Wilson, proprietor of the Hampden Worsted Mill, North Howard St., Philadelphia, Pa., died in the Abington Memorial Hospital following an operation for appendicitis at the age of 69 years. In 1875 he started the firm which bears his name. He is survived by his wife, two daughters and one son.

William H. Tobey, formerly paymaster for the Lonsdale Co., Lonsdale, R. I., died at his home in that city after a short illness at the age of 73 years. He was a member of the Christ Church in Lonsdale and is survived by a wife, one son and a daughter.

Arthur Valentinis Dees, for over twenty-five years in the employ of the Schlichter Jute Cordage Co. of Philadelphia, Pa., as its manager, died at his home in that city. He was born in 1848.

Frank W. Allen, for many years superintendent of various silk mills throughout the country, died at his home in Paterson, N. J., from heart trouble. Mr. Allen was a native of Haydenville, Mass., but in recent years had been located in Spring Valley, N. Y.; Scranton, Pa., and Paterson, N. J.

Samuel Williams, a retired Boston merchant and financier, died at his home in Brookline, Mass., at the age of 72 years. Mr. Williams was widely known throughout the woolen business as a manufacturer and jobber. He at one time operated the Vassalboro Mill, No. Vassalboro, Me.; Phoenix Worsted Mill, East Greenwich, R. I., and the Byfield Woolen Co., Byfield, Mass. Mr. Williams was a member of the Harvard St. Congregational Church of Brookline. He is survived by his wife, one son and a daughter.

Joseph M. Adams, owner of the Arcola Mill, Manayunk, Philadelphia, Pa., died at his home in Fairview of hardening of the arteries at the age of 65 years. Thirty-five years ago Mr. Adams moved to Manayunk and purchased the old Shurs Lane Mill and started in the manufacture of carpet yarns. Years later he extended the plant and in 1900 incorporated it under the name of the Arcola Mill. He was one of the largest manufacturers of worsted and woolen yarns in Philadelphia. He is survived by one son, Roland T. Adams, who has been connected with his father in business since the incorporation.

William Churchill Moseley of the firm of Moseley & Co., knit goods manufacturers, Needham Heights, Mass., died at his home in Needham at the age of 35 years. His father, John Moseley, died two weeks ago. He is survived by his wife and one son.

Samuel C. Wood, senior partner of the firm of S. C. Wood & Son, Pittsfield, Mass., manufacturers of elastic hosiery, died in Needham, Mass., after a period of eighteen months' sickness. Mr. Wood came to Pittsfield twenty years ago and started in the elastic hosiery business. He was a member of the Sons of St. George, also a Mason. His wife and one son survive him.

William Parks, 74 years of age, died at his home in Pittsfield, Mass. He had been in poor health for several years. He was at one time overseer of the weaving department at the S. N. & C. Russell Manufacturing Co. of that city and later took a position with a large mill at Holyoke, Mass. His last position in the mill was with James & E. H. Wilson, Pittsfield. He retired from active life several years ago and is survived by his wife and one daughter.

Charles A. Schieren, founder of the Charles A. Schieren Company, whose immense business as manufacturer of leather belting extends all over the world, died on the 10th of March at the age of 73, from an attack of pneumonia. Mr. Schieren was born in Prussia and came to this country when a small boy. In 1863 he first started in the leather business and five years later formed the firm of Charles A. Schieren & Company, which in 1898 was incorporated. Their main office is in New York and they have branch houses in the principal cities of the world and large tanneries in Tennessee, Pennsylvania, and Maryland. Mr. Schieren has always been a prominent citizen and has taken an active interest in civic affairs. He was Mayor of Brooklyn in 1893, connected with the Chamber of Commerce, Board of Trade, was director of the Hyde and Leather Bank, president of Brooklyn Academy of Music and trustee of various other institutions. Several years ago he retired from active business and devoted himself to his outside interests. Since that time the business has been conducted by his three sons. It is an additionally sad circumstance that his wife died two days later of the same disease.

George Alexander Wilson, general superintendent of the mills owned and operated by the B. B. & R. Knight interests, died at his home in Providence, R. I. He was born in Millbury, Mass., and attended the public schools in that town. He afterwards took up the mill business at Wilkinsonville, Mass., where he remained for a number of years. He was offered a position with the Hamlet Textile Co. of Woonsocket, R. I., and spent a number of years there as overseer of spinning. He later became superintendent of the Canoe River Mill at Taunton, Mass., and later went to the Howland Mill, New Bedford, Mass., to take charge of spinning. Some thirteen years ago he became superintendent of the Whitman Mill, New Bedford, and for the past five years he had complete charge of the many mills operated by the B. B. & R. Knight interests.

Edward White, president of the Tioga Textile Company, Philadelphia, Pa., died at his home in that city, following an illness of twelve years. He was 63 years of age and was born in Scotland. When a young man he settled in this country and was an apprentice in several textile mills In 1905 he came to Philadelphia where he was made a member of the Tioga Textile Company and later was appointed president. His wife and one son survive him.

Thomas F. Barry, treasurer of John & James Dobson, Inc., Philadelphia, Pa., died at his home in that city at the age of 61 years following a short illness. Death was due to congestion of the lungs. Forty-five years ago he succeeded his father, Patrick Barry, as bookkeeper for the firm and later was elected treasurer. He is survived by a son and one daughter.

Charles D. Owen, treasurer and general manager of the Beacon Manufacturing Co., New Bedford, Mass., died suddenly at his home in that city at the age of 73 years. He had been connected with the Beacon Manufacturing Co. for a number of years. His wife and three sons survive him.

Harry Carr, who was overseer of spinning at the Richard Borden Manufacturing Co., Fall River, Mass., for a number of years, died at his home in that city at the age of 58 years. He was born in Gibbstown, N. J., and his last position was at the Shove Mill, Fall River. He was prominent in fraternal orders.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

The Official American Textile Directory; 1915 edition; compiled by the Textile World Record; 650 pages; 23 textile maps; Lord & Nagle Company, Boston, New York, and Philadelphia, publishers; Office Edition $3.00, Standard Edition $2.00; Vest Pocket Edition, divided into three sections, viz., New England States and Canada, Middle Atlantic States, Southern and Western States, $1.00 for each section.

Since last year's textile directories were compiled there have been thousands of important changes in the textile industry in the United States and Canada. Nearly three hundred new mills have been started and nearly two hundred manufacturing concerns have gone out of business. Changes in management, in products, and in equipment are more numerous. In the distributing end of the industry new channels are being opened up for American textile products, so there has been added this year a new list of export commission houses and agents handling American textile products. The changes and improvements make the appearance of the new Directory, with all lists completely revised and brought up-to-date, a matter of great importance to the trade.

This is the 21st year of publication of the Official American Textile Directory, and each year the standard set by previous editions has been maintained and some advance made in arrangement or in completeness. This year's directory is in many ways an improvement over any directory of the textile trade previously compiled.

Some of the special features are as follows: A complete directory of textile mills of all classes, with full information, such as name of company or firm, names of officers, character of goods made and machinery equipment.

Copyrighted maps, by which any town referred to in the text can be quickly located on the map. There are twenty-three of these textile maps, which show only the cities and towns where there are textile establishments and junction points. Railroad facilities, distance from other towns, etc., are shown.

A yarn trade index, which gives a classified list of manufacturers of different kinds of yarn, who spin for the market; size of yarns spun and the way it is put up are given.

A classified list of cloth manufacturers, giving the classes of goods manufactured in every mill.

A commission and order section, giving classified lists of establishments doing all sorts of dyeing, bleaching, finishing, mercerizing, etc., on order for manufacturers and converters.

A list of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

Indexes are printed on different colored paper from the mill reports, enabling quicker reference to the section desired. The running headings at the top of pages are made to show at a glance the contents of each page.

Other features are an alphabetical index, dealers in raw materials, lists of manufacturers of and dealers in cotton and woolen waste, shoddy and flocks, selling agents and dry goods commission houses, machinery and supply section, and a list of the textile associations in the United States and Canada, with officers, addresses, etc.

The special attention of salesmen is called to the Vest Pocket Edition, divided into three sections one of the New England States and Canada one of the Middle Atlantic States; and one of the Southern and Western States. Each of these little directories contains the textile maps for the larger states in that book just as they appear in the large editions of the directory. These little books are six by three inches in size, similar in appearance to a vest pocket memorandum book, and no thicker. The mill reports are in the same complete form as they appear in the large editions and are arranged in the same ready-for-reference way.

A Handbook of Color Chemistry, including the Extraction and Preparation of Tar as well as the Methods of Producing Raw Materials and Intermediate Products (Lehrbuch der Farbenchemie, Einschliesslich der Gewinnung und Verarbeitung des Teers Sowie der Methoden zur Darstellung der Vor—und Zwischenprodukte), by Dr. Hans Th. Bucherer, Manager of the Schering Chemical Works, Berlin, and Professor at the Textile High School in Dresden; 557 pages, 6 1/2 by 9; Otto Spamer, Taeubchenweg 26, Leipzig, Germany. Price $7.50.

This is a work that will prove of special interest and value in the United States at the present time, owing to the interest in the establishment of an artificial dyestuff industry in this country. The author is a trained chemist who has practical experience in the management of German chemical works. He treats the subject under the following heads: 1, Coal Tar, Its Extraction and Preparation; 2, Intermediate Products for the Manufacture of Coal Tar Dyes; 3, The Dyestuffs. The subject matter under each of these three heads is systematically arranged so that the reader can easily refer to any subject desired. The text is in German as would be the case with any first-class treatise on the artificial color industry at the present time.

Advertiser's Hand Book of New England; Eastern Advertising Co., 408 Sears Bldg., Boston, Mass.

Advertising and sales managers will be interested to know that they can obtain upon application on their company's stationary, a very useful book recently published by the Eastern Advertising Co., who control the street car advertising in

all New England States. The book is unusual for the reason that it says very little about car advertising, and contains a remarkable collection of valuable, hard-to-get data regarding all principle lines of business. It also tabulates in convenient index form, a list of all principal trading centers in the New England States, together with the towns and villages naturally tributary to these trading centers. In this tabulation, appears the number of dealers in all lines in each of these cities, towns and villages, the number of hands employed in industries, the yearly wage outlay, and the approximate volume of retail sales. Altogether, the data contained in this hand book of New England, is extremely valuable, both in planning an advertising campaign, and in directing the efforts of salesmen. Requests for this book should be addressed to the Eastern Advertising Co., 408 Sears Building, Boston, Mass.

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Diameter of Yarns; by Sam Wakefield, president Stockport (Eng.) District Mill Overlookers' Association; 24 pages, 4 1/2 by 7; published by the author. Price 25 cents.

The pamphlet is a reprint of an article from the Textile Mercury, Manchester, England, to which a number of tables have been added. For those who are interested in what is known as the diameter of yarns, this little book supplies an excellent summary of the theories and speculations on the subject. It is, however, difficult to discover the value of Mr. Wakefield's article to the designer and manufacturer. The diameter affords an excellent basis for expressing the size of metals or other hard substances, but when it comes to yarn spun and twisted in innumerable ways from fibers of widely varying and indeterminable character, the diameter is but a vague idea supplying a basis only for ingenious, but useless theories.

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BUSINESS LITERATURE

Blaisdell Equipment; The Blaisdell Machinery Co., Bradford, Penn.

An illustrated catalogue describing the Blaisdell equipment for the use of compressed air in textile mills. Each new feature of the Blaisdell product receives careful consideration by representatives of every department of the organization, before acceptance. Thereafter it is developed, machined and assembled under critical inspection, during a series of exhaustive tests.

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THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The fiftieth meeting and dinner of the Southern New England Textile Club was held at the Hotel Narragansett, Providence, R. I., on March 20th, about 200 members and guests being present. The usual speech making was eliminated and in its place a vaudeville entertainment was furnished. An orchestra furnished music during and after the dinner, and the Eureka Quartet, composed of negro singers, sang plantation melodies. The next meeting of this association will be held at the Hotel Bancroft, Worcester, Mass., on April 24.

Industrial Notes

PRICE REDUCTIONS IN EDISON MAZDA LAMPS

Practically all the sizes and types of Edison Mazda multiple lamps are affected by reductions in list prices that were put into effect April 1st, 1915, by the Edison Lamp Works of General Electric Company. On the regular straight side and round bulb lamps, from the 10-watt to the 250-watt sizes, also on sign lamps, stereopticon lamps, etc., the reductions range from 3 to 20 cents per lamp, according to the size. These reductions, which average about 10 per cent., will tend to popularize further already popular lamps.

The new concentrated filament vacuum lamps of 25, 40 and 60-watt sizes now list at only 5 cents per lamp more than the reguar lamps of corresponding sizes.

On the gas-filled, multiple lamp of 100 to 1000-watt sizes, the reductions range from 50 cents to $1.00 per lamp, the average reductions being between 20 and 25 per cent. The introduction of gas-filled lamps has been exceptionally rapid. Over a million are already in use. The decreased cost of these lamps will undoubtedly result in a still more rapid replacement of vacuum lamps by the more efficient gas-filled units.

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A BALE OF WOOL FOR CHARITY

London Times, January 28

As a contribution to one of the local patriotic funds a bale of wool was given by Mackay Bros., and was offered for sale by auction at Sydney. The bale was sold at various sums, ranging from £10 to £60 ($48.65 to $292), and each purchaser in turn offered it for sale until the buying was exhausted, the total realized being £500 ($2,433).

At the unanimous wish of the various purchasers the bale was consigned to the London Wool-Selling Brokers' Association, which decided to offer it for sale at the Wool Exchange. Each successive buyer put it up for sale again until £1,661 ($8,083) had been realized. The bale, which weighed about 350 pounds, was finally sold at 2s. 0½d. ($0.50) per pound. The proceeds, £2,160 ($10,500), will be divided among the patriotic funds.

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OPEN NEW ENGLAND OFFICE

The Philadelphia Textile Machinery Co., builders of the Proctor system of drying machinery, have opened an office in Providence at 422 Howard Building, in charge of E. B. Kerst. This company has been doing a large business in the Eastern States and has found it desirable to have Eastern headquarters for their representative so as to make it possible for concerns interested in their machinery to get in direct and quick communication with him. Mr. Kerst is now in a position to give prompt attention not only to new customers, but to any users of their machinery, in regard to its operation.

THE CHAS. A. SCHIEREN COMPANY EXHIBIT AT THE PANAMA-PACIFIC EXPOSITION

There are very few people who realize how many problems confront the use of belting. Limited space on many machines compels the use of narrow belts. Positions of shafting and machines to be driven and numbers of other unlooked for difficulties must be met, but the practical demonstration of different forms of drive as shown in this exhibit of Schieren's is a splendid argument for belt-driven machines where belt machines are in a fixed position.

When Schieren invented the process that this company uses in making Schieren's Duxbak Waterproof Leather Belting he made a "Seven-League Stride" in the right direction. Duxbak belting is able to keep its shape and size in all climates and under any manufacturing conditions it may meet, from the hot, dry air necessary in some cases to the wet, sloppy paper mill, dye works or metal mills. All Schieren Duxbak Beltings are made air, fume and waterproof.

The "Duxbak" trade-mark is a stamped guarantee that the leather is of A-1 centrestock-packer-steer-hides, cement perfect and workmanship of the first order. If any stamped Duxbak does not come up to this high standard it may be returned to Schieren and the price refunded.

The belting shown in the illustration is, of course, the important thing, but the booth itself is interesting.

It is located on a corner 31 feet by 31 feet, is an Octagon in form, whose parallel sides are 20 feet.

The floor of the booth is 18 inches above the floor of the hall and rests upon a substantial iron frame work, whose main supports rest upon a masonry foundation.

THE SCHIEREN CO.'S EXHIBIT AT THE PANAMA-PACIFIC EXPOSITION

In the centre of the booth is a basin 6 1/2 feet in diameter, with fountain and upon the dome a Schieren belt 190 feet long is arranged in a spiral, bearing the firm name of Chas. A. Schieren Company. This belt is illuminated by 110 concealed lamps of 50 candle-power each, and 29 lamps illumine the interior of the booth.

In the booth machines and belt drives are shown, to demonstrate the application of Schieren belting to interesting drives.

A 5.4 3-phase motor of 1,440 revolutions per minute drives Shaft No. 1 by means of a Lenix at 360 revolutions per minute. The Rheostat has

an automatic switch, which may also be worked from one of the corner columns.

Shaft No. 1, by means of an overhanging pulley and two guide pulleys, drives a centrifugal machine. It also drives, by means of a belt, shaft No. 2, the belt running over a fixed idler pulley and a Lenix. The centrifugal machine runs at a speed of 1,080 revolutions per minute, and this belt drive is especially characteristic and interesting.

Shaft No. 2, running 180 revolutions per minute drives from one end a planer by means of a Bamag countershaft (with 2 pulleys) at 1,200 revolutions per minute. On the other end (of shaft No. 2) it drives Shaft No. 3 at 60 revolutions per minute by means of a quarter turn belt arrangement with automatic tightener. A cement tube mill grinder of 60 revolutions per minute is driven by means of a simple countershaft.

From the friction clutch pulley on Shaft No. 3 a belt running over mule pulleys leads to a vertical shaft, from which the vertical shaft for the Lenix drive in the water basin is driven. A duck, representing the trade-mark of the firm, is fastened to the belt, which runs permanently in the water.

From Shaft No. 2 is driven also a centrifugal pump, which serves the fountain On two sides of the booth at a distance of 2 meters, are located two substantial platforms, 76 high x 1 meter wide, exhibiting various transmission appliances.

Taken altogether it is an impressive exhibit, which strikingly demonstrates the special features of the Schieren product from the point of view of the power user. A large staff of assistants is ready to give belting information to all interested, no matter whose belting they are using.

WILL BUILD HARRIS VALVELESS ENGINE

The Southwark Foundry & Machine Co., of Philadelphia, Pa., has secured the exclusive United States license to manufacture the Harris valveless engine, Diesel principle, which will hereafter be known as the Southwark-Harris valveless engine. The engine will be built in sizes from 75 B.H.P. to 1000 B.H.P.

They will have Leonard B. Harris, the inventor of the Harris valveless engine, as consulting engineer and his extensive experience in power engineering will be available for all prospective customers.

MOVING INTO LARGER OFFICES

The C. W. Hunt Co., Inc., owing to their increasing business, will in April 1st move their New York office from 29 Broadway, where they have been for many years, to the new building of the Adams Express Co. at 61 Broadway. They will occupy a suite of offices on the 11th floor, which will give them much better facilities for transacting their business. The company are large manufacturers of coal handling machinery, conveying machinery and small motor trucks.

"ANTI-PLUVIUS" SKYLIGHTS FOR TECHNOLOGY BUILDINGS

"Anti-Pluvius" puttyless skylight and "Straight-Push" sash operators have been selected and the order placed with the G. Drouve Company, of Bridgeport, Conn., for the new group that will comprise the Massachusetts Institute of Technology on the Charles River Road, Cambridge, Mass., William Wells Bosworth, Architect, and The Stone & Webster Engineering Corporation are the engineers and constructors.

About 20,000 square feet of skylights will be required for lighting the various class and drafting rooms on the top floors of the eleven buildings that comprise the present group.

The "Straight-Push" sash operator is to be used in connection with ventilating sash along the sides of four of the largest skylights.

Careful consideration was given to the various items which make up the design and to the lighting effect as well as the general appearance and in the adoption of the "Anti-Pluvius" construction another laurel is added to The G. Drouve Company.

THE ANILINE DYE QUESTION

From the Manchester Guardian

The annual meeting of the shareholders of the Bradford Dyers' Association was held at Bradford yesterday.

The chairman (Mr. Milton S. Sharp) said the net profits for the year were £387,923, and the directors recommend a dividend on the ordinary shares, making 5 per cent. for the year. As compared with the previous year their profits were £42,158 less, but he thought they had all been prepared for a much greater shrinkage, and he believed the predominant feeling would be one of satisfaction and surprise that their profits had not suffered more. In August and September there was a great reduction in the volume of their business, and at the same time they were met with steadily rising expenses, which it was impossible to offset by economies, and no attempt was made to obtain relief by an increase in their dyeing charges until October 12. Their stocks were about £100,000 more than a year ago. This was acounted for by their having immediately on the outbreak of the war bought all the aniline and some other dyes on which they could lay their hands. In determining to recommend the carrying forward of the large sum of £127,882 their directors were influenced by the grave difficulties and uncertainties with which they were surrounded and by a desire to minimize the risk of having to encroach upon their reserves for the payment of dividends in the current year. He had little doubt the shareholders would approve and endorse the Board's cautious recommendation. They felt it their duty to make some allowance for the benefit of the dependents left behind by their employees on active service, and up to the end of December they had distributed £6,051. In collaboration with the workmen's societies they were formulating a scheme whereby their employees might contribute to the dependents of any of their em-

ployees who might lose their lives in the service of the country, and also of those who might be totally or partially disabled.

Referring to the dye question, the chairman said one economic effect of the war had been a great rise in the price of almost all commodities. In many cases the advances had been enormous, and the consequent increase in their costs of production, quite apart from the famine prices of aniline dyes, was most serious He greatly feared that dyeing prices must inevitably be further increased. For many of their most important articles of consumption they were unable to contract except with the war clause, which meant that the contract was suspended during the period of the war. The incidence of this in the present crisis was most serious for them, as no fewer than seventeen of their large items of consumption, exclusive of aniline dyes, for which they were under contract were subject to the war clause, and the consequence was that today they are paying for such articles prices ranging from 23 per cent. to 300 per cent. higher than pre-war prices, the average advance being about 90 per cent. Immediately after the outbreak of the war they determined, if it were possible, at any cost to make sure of their ability to dye blacks of all kinds and dark blue dress goods, at least until the end of this year. They, therefore, bought all supplies necessary, of which indigo was a very important one, and for which they paid an advance of 245 per cent. on pre-war prices. Today's price for the same indigo was 350 per cent. over pre-war prices.

Dependence on Germany for aniline dyes, which were a prime necessity of the textile and many other industries, was one of the most vital and far-reaching of the many industrial difficulties and problems with which the Goverment had been confronted, for, incredible though it might seem, it affected no less than £200,000,000 of the annual trade of Great Britain and Ireland. Along with others he attended a conference with the President of the Board of Trade on the 24th of August to consider the grave consequences which the position threatened, and although unhappily they had not found themselves in entire agreement with the Government's proposal he would like to express the gratitude of the directors for the quick and full recognition which the Government had given to the position. He did not propose to discuss at length the various schemes which had claimed such an extraordinary amount of attention. Their suggestions had been published; they were not accepted, and he had felt it incumbent to withdraw from the Committee of Users appointed to confer with the Board of Trade. Subsequently the reorganized committee submitted a modified scheme, which the directors, after most careful attention and while not entirely approving of it, had determined, with certain qualifications, to support, as it appeared to afford the only attempt which the Government sanctioned to free a large section of British industry from dependence on Germany.

With regard to the prospects for the coming year, it was impossible to forecast even the near future. But though present circumstances demanded extraordinary vigilance there was nothing in the situation to shake his firm faith in the future of the Association, and he was far from taking a pessimistic view of the probable result of their trading in the current year. He certainly did not believe that the permanent interests of British industry would suffer from the war, for when it was over he believed the sympathetic feeling of the allied countries would enable them to do a much larger business with them, especially with the great Empire of Russia. It had to be remembered that the recuperative powers of the world were much greater than in former times, and the greater part of their own business was conducted with countries which would not be impoverished by the frightful expenditure caused by the war .

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BETA-NAPHTHOL

In view of the tremendous rise in price of Beta-Naphthol, due to the war, the announcement recently made by F. O. Plummer, that he and H. H. Crowell, formerly in charge of the black dye department of Joseph Bancroft & Sons Co., Wilmington, Delaware, has successfully made beta-naphthol, will be read with much interest. Mr. Plummer informs us that they will immediately equip a plant for the manufacture of naphthol products and expect to be producing beta-naphthol in commercial quantities within thirty days. The plant will be located at Sterling, Conn., and will be known as H. H. Crowell & Co.

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HUNGERFORD & TERRY OPEN NEW ENGLAND OFFICE

The business of Hungerford & Terry Incorporated, manufacturers of filters and water softeners with headquarters at Philadelphia, Pa., has reached such proportions in the New England territory that they have recently established an office at 176 Federal St., Boston, Mass., in charge of Frank I Rounds, which will enable them to give better attention to the wants of their customers in this district. Mr. Rounds will be glad to call and confer with the manufacturers on any problems or difficulties that they may have in their line.

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THE RUSSIAN DYESTUFF INDUSTRY

The "Torgovo-Promyshlennaya Gazeta" (Petrograd) of 4th/17th January publishes a notice announcing that a syndicate has been organized for the purpose of forming a Russian company with the object of establishing works for the manufacture of dyes and chemical products from native raw material, and that capital had at that date already been promised or subscribed, amounting to over six million roubles, for this purpose.

The article proceeds to state that some of the largest industrial concerns, especially around Moscow, are interested in the proposed undertaking.

The plans for the establishment of this undertaking have been conceived on a comprehensive scale, and will provide, inter alia, for the erection of special laboratories, under the direction of properly qualified professors and assistants, for experimenting with raw material.

ARGENTINE WOOL CLIP AND PRICES

According to "La Prensa" of Buenos Aires the 1915 wool clip of Argentina will yield 85,000 bales, which, if current prices are obtained, will produce $19,000,000 United States currency. Never in the business history of these countries has wool realized such high prices as are now being paid, due entirely to the urgent need for this raw material in certain of the countries engaged in the war in Europe. Although this year the wool clip is less in quantity than last year, its greater value compensates for this shrinkage, so that the proceeds should amount to about the same as last year's.

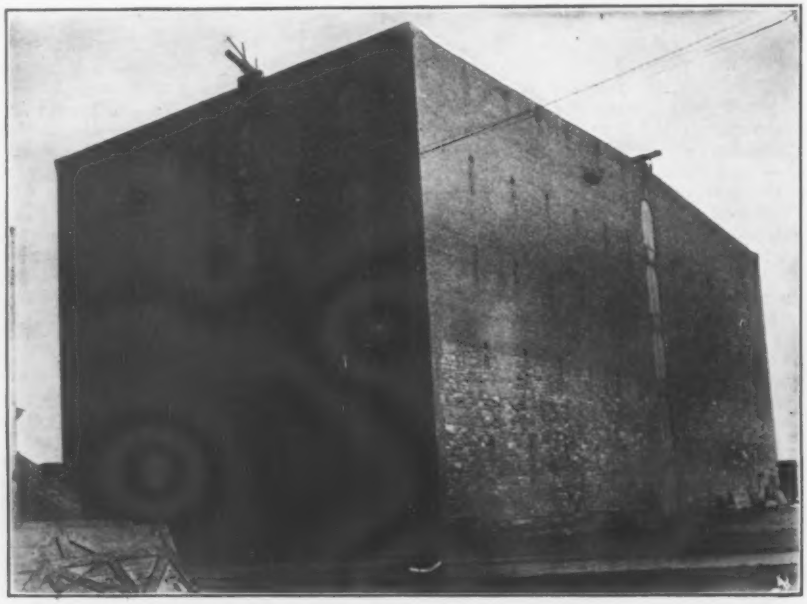
EXTERMINATING RATS AND MICE BY CONTRACT

During the past year the sales of Danysz Virus had been increasing so rapidly it was decided to incorporate a company for furthering the sale of this rat and mice exterminator. The Virus Limited was incorporated under the laws of the State of New York and is now actively pressing the sale of Danysz Virus.

The new company has made a departure from the old methods of merely selling Danysz Virus and in July took a contract with the American Thread Company to keep their mills at Willimantic free of rats and mice for one year. A representative of the Virus Limited Inc. went to Willimantic as soon as the contract was closed and made an application of Danysz Virus over the entire plant. In three months the same representative went again to Willimantic to investigate the conditions and found that the place had been practically free from rats except in one building. An application of the Danysz Virus was made in that building and the same quantity distributed in various other places throughout the plant.

In addition to the Danysz Virus for exterminating rats and mice, the Virus Limited Inc. has decided to put on the market a salt for the extermination of roaches and water bugs, which have proven a nuisance in many textile plants. Such concerns as the American Viscose Company, Marcus Hook, Pa.; the Goodyear Tire & Rubber Company, Akron, O.; the Davis Oil Company, Brooklyn, N. Y., etc., have tried this salt which is now marketed by the Virus Limited Inc. under the name of "Sal Insecta."

This proposition of taking contracts to keep places free from rats and mice shows the faith of



WAREHOUSE NUMBER 23, BEARD'S STORES, ERIE BASIN, WHERE DANYSZ VIRUS HAD ITS FIRST PUBLIC TRIAL IN THE UNITED STATES

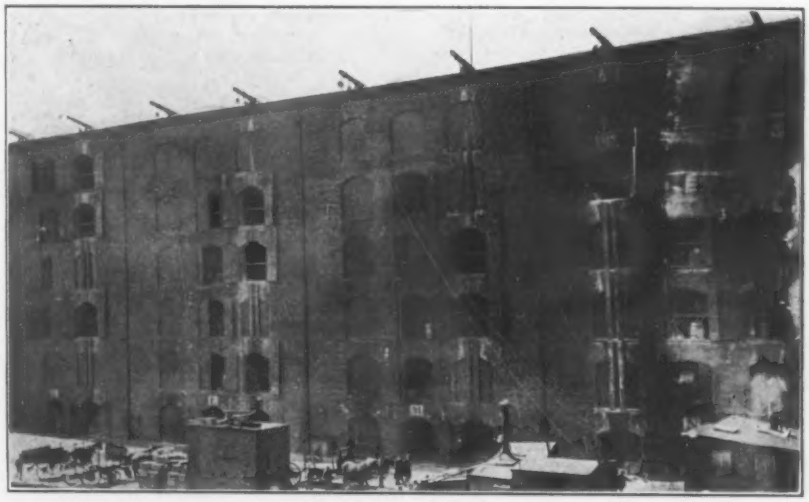
SILK ARMY CLOTHING

From Commerce Reports, Department of Commerce

The report for the year of the Silk Association of Great Britain and Ireland states that during the war trade has fallen off seriously in certain quarters, but that it was encouraging to find at the close of the year that the industry should be so little removed from normal conditions.

The proposal made recently that tussah silk should be used in place of khaki for soldier's uniforms is recalled. A khaki cloth composed of tussah silk warp and worsted weft was made, and the war office approved samples submitted to it. An order was given for the clothing of a battalion of the Yorkshire Regiment with the new cloth, and it was hoped that further orders would be forthcoming. The view was expressed that the material was of ideal quality for use by colonial troops. It is comparatively little dearer in price than woolen and worsted khaki, and its greater wearing qualities have been vouched for.. The consideration of cost. it is understood, stands in the way of its development.

the Virus Limited in their own goods and should prove of interest to textile mill owners. The company, however, will take contracts only of such size as would pay them to send their men to supervise the work. The Campbell Stores in Hoboken, a photograph of which is shown, apply Danysz Virus themselves only whenever rats and mice are seen and by using an occasional lot of fifty or one hundred tubes three or four times a year, they are able to keep their warehouses practically free from these pests. The Stevens Mfg. Company of Fall River, Mass., use Danysz Virus, preparing it themselves, whenever they see any signs of rodents.



CAMPBELL'S STORES, HOBOKEN, N. J. THE CONTENTS OF ONE THOUSAND TUBES OF DANYZS VIRUS WERE DISTRIBUTED THROUGH THESE WAREHOUSES IN 1910. SINCE THEN AN OCCASIONAL APPLICATION OF FIFTY TUBES SERVES TO KEEP THE STORES FREE OF RATS AND MICE

The Virus Limited Inc. have published a book showing many interesting scenes abroad where Danysz Virus is used and this book is being distributed free to any who are troubled with rats and mice. Some of the pictures shown in the book include the Royal Estate where King George of England has spent Christmas; The Irish seat of the Duke of Manchester, and a view of the Austrian Tyrol where tons of bait, prepared with Danysz Virus, was distributed by the peasants.

This method of exterminating rats and mice has a peculiar merit of its own. It is a germ of disease which is injurious to rats and mice only and is not harmful to human beings and other animals. This exterminator is used in textile mills without any damage to the employes. It has been found that the rats and mice when they contract this disease, leave the building and are sometimes found dead about a mile away, which shows that there is no danger of unpleasant odors from rodents dying in the buildings. One of the members of the Lord & Nagle Co. has used it with entire satisfaction in his house which was entirely cleared of mice within ten days and none died on the premises. Six tubes did the work.

NEW TEXTILE MACHINERY CONCERN HOLDS ANNUAL MEETING

The annual meeting of the stockholders of the National Textile Machine Co. of North Paterson, was held on March 22nd. This concern was incorporated a year ago and manufactures textile finishing machinery.

They have specialized in machinery for the treatment of silk and silk mixed fabrics and have placed several new and improved machines on the market for the handling of silk and wool and silk and cotton goods.

They are also building a special doubling machine whereby the tissue is doubled and wound upon a cardboard and at the same time tissue paper is inserted between and around the folds.

A. W. Buhlmann, Textile Engineer of New York, is the sole selling agent of the concern and was elected a director at the last meeting.

KLAUDER-WELDON DYEING MACHINE COMPANY HAVE PATENT OWNERSHIP SUSTAINED

We are informed that the Appellate division of the Supreme Court has recently rendered a decision unanimously affirming with costs the judgments obtained in suits brought by Klauder-Weldon Dyeing Machine Company against John H. Giles and the Leonard Weldon Estate.

The Klauder-Weldon Dyeing Machine Company, in the suits referred to, sought proper assignment of two patents and secured a favorable decision in the Supreme Court from which the defendants took appeal with the result that the decision was affirmed and the Klauder-Weldon Dyeing Machine Company has thus maintained its right and comes into possession of its property consisting of two patents.

HEATING AND VENTILATING

The Buffalo Forge Co., Buffalo, N. Y., reports that it has recently received contracts for heating and ventilating apparatus for the following public buildings: Private Ward Hospital, Wilkesbarre, Pa.; Southwark Public School, Philadelphia, Pa.; Merchants National Bank, Richmond, Va.; Union High School, Alhambra, Cal.; High School, Compton, Cal.; El Paso Telephone Co., El Paso, Texas; Public School, Garden City, S. D.; Concordia Club, San Francisco, Cal.; Bloomsburg Church, Bloomsburg, Pa.

The Buffalo Forge Co., Buffalo, N. Y., reports that it has received a large number of orders for heating and ventilating systems during the past two or three months, for new public buildings being erected throughout the country. Following are some of the recent orders: Chemistry Building, University of Illinois; Hebrew Technical School, New York City; Kern County High School, Worcester, Mass.; Bryan Mullanphy School, St. Louis, Mo.; First Baptist Church, Sherman, Texas; Children's Hospital, Philadelphia, Pa.; Ames Building, Cleveland, Ohio; Baltimore Hotel, Kansas City, Mo.

ITALY'S DYE SHORTAGE

Manchester (England) Guardian, Feb. 24

It is rather surprising to learn that there is a shortage of dyestuffs in Italy, for one would have thought supplies could have been obtained from both Switzerland and Germany. It is possible, however, that Italian dyers are not prepared to pay the extremely high prices which prevail in England at present, so that Swiss colors are virtually all finding their way to this market, while transport difficulties may be preventing the delivery of German dyestuffs. The position is evidently serious, for at a meeting on the subject, just held in Milan, it was stated that many dyers had been forced to close their works entirely on account of lack of dyestuffs, while most of the others were on short time. It was proposed to attempt to establish the manufacture of dyestuffs in Italy. Special reference was made to the English scheme, and it was considered that one on the same lines would be suitable for Italian conditions. A commission was appointed to investigate the matter and submit a report. It may be mentioned that there are no import duties on coal-tar colors in Italy. Very marked progress has been made by Italian dyers and printers during the last dozen years or so, and they are now serious competitors of English producers in some leading export markets. The past year, however, has apparently been an unsatisfactory one for Italian calico printers. The report just issued by the De Angeli Printing Co., the largest Italian firm in this branch of the textile industry, states that only a very trifling profit has been made. The capital is about $5,000,000.

THE "JITNEY" CAR

"The Jitney is just at the beginning of its career," says President George A. Kissel of the Kissel Kar. "The fact that private individuals can run a small pleasure car at five cents a ride and make a profit, is attracting the attention of capitalists.

"You will soon see the Jitney idea organized and systematized and a real live and permanent competitor of the street railway. In not very many years from now you will find it largely supplanting the rails with fine, spacious motor busses that do not tear up streets or offend the eye. It's the logical thing and bound to come. In fact, it is already a firmly established success in Europe."

MOVED TO NEW PLANT

The Schaeffer & Budenberg Mfg. Co. have moved into their new plant at Brooklyn, located at Berry & South Fifth Sts. This is a concrete, fireproof structure of modern type and design. The seven floors contain 70,000 square feet of area. The arrangement of their machinery is such that the work follows the natural course without waste movement. It has excellent shipping facilities and on account of its easy access to the business section of New York City, the home office will be located in the new quarters as well as the complete manufacturing organization. The concern manufactures a complete line of thermometers, gauges, recording instruments for electricity, steam, gas, etc., and has branches all over the world.

CLASS IN WORSTED YARN MANUFACTURE

The graduating class in worsted yarn manufacture of the Lowell Textile School enjoyed a dinner and theater party on the evening of March 13. The guests were Prof. Edgar H. Barker, chief of departments of woolen and worsted yarns and textile testing; John C. Lowe, instructor in worsted spinning, and John N. Howker, instructor in wool sorting and scouring. The toastmaster at the dinner was Ralph A. Butland. The occasion was enlivened by Arthur W. Whitley who entertained the class with some up-to-date jokes told in his inimitable manner.

MOSCOW COTTON AND WHEAT PRICES

Cablegram from Consul General John H. Snodgrass, Moscow, Russia, Mar. 1

First-grade Ferghana cotton, corresponding to American good middling, delivery February to May, Moscow, 23.75 to 24 rubles per pood (33.9 to 34.2 cents per pound). Wheat, 1.30 to 1.70 rubles per pood ($1.11 to $1.45 per bushel), according to quality.

[There is a war tax on Russian cotton of 2.50 rubles per pood (3.6 cents per pound). The customs duty on cotton imported into Russia is 5.7 cents per pound, except cotton imported from Persia, on which the duty per pound is about three-fifths of 1 cent. Conversions have been made on the basis of 51.5 cents to the ruble, which has, however, depreciated in exchange value since the beginning of the war.]

SANITARY DRINKING FOUNTAINS

It is stated that one drinking cup can spread more disease in an hour than a board of health can eradicate in a year. The germs which are spread in this manner are often more dangerous than poisonous drugs, because neither to the sight, taste nor smell is conveyed the presence of the poison, and because it gives no immediate indication of the injury it has inflicted.

The first agitation for the abolition of the common drinking cup was begun by people interested in the anti-tuberculosis movement who found that the cups on trains frequented by consumptive patrons bound for health resorts in the southwest became infected. The result of their observations led to the conclusion that other diseases are transmitted equally as well.

Prof. A. Davison, La Fayette College, Penn., subjected a number of glasses, which had been used from nine days to several months in public schools, to microscopical tests and found literally millions of decaying human cells and bacteria. These included the germs of tuberculosis, pneumonia, diphtheria, tonsilitis and pus diseases. Guinea-pigs inoculated from the washing of the cups died from pneumonia and tuberculosis.

Kansas was the first state to prohibit common drinking cups. In March, 1909, the Board of Health, at the request of its secretary, Dr. S. J. Crumbine, passed resolutions that no public or private school and no railroad corporation should furnish common drinking cups.

Since the Kansas board took action in March, 1909, thirty-six states and fifty-one principal cities have taken similar action, which makes non-compliance a misdemeanor punishable by a heavy fine or imprisonment.

The health authorities of a few states are hampered in taking definite steps by lack of authority under the law, but they uniformly advise against the use of the common drinking cup.

The Massachusetts State Board of Health has made the following regulations concerning the use of the common drinking cup, in accordance with the provisions of chapter 428 of the Acts of 1910:—

On and after October 1, 1910, it shall be unlawful to provide a common drinking cup:—

(a) In any public park, street or way.

(b) In any building or premises used as a public institution, hotel, theatre, public hall or public school.

(c) In any railroad station, railroad car, steam or ferry boat.

The Massachusetts State Board of Labor and Industry has also been given power to remedy any unsanitary condition it may find in any manufacturing plant and to prosecute if necessary. The Board feels strongly against the common drinking cup.

The inhalation theory to account for the occurrence of pulmonary pneumonia has been shown to be no longer tenable because no substance can be carried with the finer bronchioles by the respiratory process; dried and pulverized tuberculosis material has been shown to lack infectiousness, and the infection spray discharged from the mouth of tuberculosis persons while speaking or coughing is dangerous only in their immediate environment or if allowed to touch food.

The minute particles of skin left on the edge of the cup or glass and subsequently carried into the persons who later use the same cup are frequently dangerous, causing not only the serious diseases, but the minor ailments that keep an employee out for a few days.

The economic loss caused by these temporary absences amounts to a large sum through the year. If another employee is substituted, more supervision and instruction is called for and more mistakes are made and goods spoiled, and if a substitute is not put in, the others by carrying on the extra work disarrange the system and lessen their own efficiency.

The fact remains, however, that employees must drink, especially during the summer months.

In view of the widespread demand covering, as it now does, the broad area from Maine to California, the manufacture of bubbling fountains in various types has been rapidly developing. To meet this demand, manufacturers are making a great variety of sanitary fountains, meeting the requirements of schools, factories, department stores, hotels, parks, etc. Complete fountains can be obtained from $6.00 up, and one fountain will supply a large number of people. They can be had in self-closing form so no more water is used by this method than in the old way.

A very complete line of sanitary fountains is illustrated in a book published by Rundle-Spence Mfg. Co. of Milwaukee, Wis., who will send it to any manufacturer or mill man who may be interested.

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EDUCATION AND MANUFACTURING EFFICIENCY

Report of an Address by Roberts Beaumont at Dewsbury Technical School

Mr. Beaumont observed that a few years ago he was the guest of a German student and manufacturer in a provincial town some 30 miles northwest of Cologne, who had received a full course of training in the Royal Weaving School at Aachan before graduating in Leeds. The mills of this manufacturer were inspected in each department, and the information was elicited that managers, foremen, and a percentage of the workers held qualifying diplomas. The factory was well organized and appointed throughout, the machinery having been constructed for yarn preparation at Mulhausen, for weaving at Chemnitz, and for finishing at Aachen. An interesting problem suggested by a textile factory thus controlled and run was the degree in which efficiency and productive power were determined and measured by the educational methods which had been so distinctively utilized by the principals, managers, and operatives.

Technical education when correctly interpreted was concerned with the equipment of the craftsman, and with the qualification of the initiator and controller of industrial activities. Education was not, in this relation, as sometimes implied, devisible into higher and lower grades, its standard

and efficiency being proportionate to its adaptability to specific requirements. The productive power of a factory was governed by methods of organization, mechanical advantages, skilful and progressive management, and the average competency of the workers. Appreciating this, a full scheme of technological education should, on the one hand, augment the productive capability and accuracy of judgment of the craftsman and, on the other, expand and quicken the mental aptitude and facility for direction of the expert, adding to his proficiency in discovery, initiative and systematization.

Practical demonstrations were feasible which had for their function the skilful betterment of the operative for his specific employment, and which, having no ulterior or extraneous object to comprise, resulted in a working intelligence that accelerated and characterized with correctness the output of the factory The success of the dyeware industry of Germany was established and built up on the union of scientific attainment and practical skill. Chemical science had been linked in the closest relation with the practice of the dyehouse. The product of science was rendered immediately accessible to the manufacturer by the technical exactitude and reliability of sequence with which it could be applied. Dyers' problems were solved by chemical and dyeing practitioners.

All-round methods of education were demanded to ensure progressive development in the textile industries. Training was essential for all grades and classes of workers. For commercial expansion it became increasingly imperative that technological study, while comprising those branches of science which entered into manufacturing processes and routine, should be more than colored with practical inferences. Educational sophistries and mythical research did not advance technical scholarship; they were as elusive in tangibility as the will-o'-the-wisp, and as notably lacking in the qualities of materialisation.

Industrial and commercial war of a keenness and intensity hitherto unknown or undreamt of in the trade philosophy of the past would follow on the heels of the existing military conflict and strife The country whose educational methods were in the most adequate condition of preparedness and of a character to be responsive to the ever-increasing industrial exigencies would achieve in this war the greatest measure of success.—Yorkshire Observer.

ADDITION TO SHUTTLE FACTORY

The Shambow Shuttle Co. of Woonsocket, R. I., makers of Shambow Hand-Threading Shuttles, report that they are building a two-story addition to their factory and have installed several improved machines to take care of the continued increase in their business. The demand for their shuttles has been so great that they have been forced to work overtime during February and March.

*Georgia, Macon. About $40,000 will be expended by the Bibb Mfg. Company for equipment for the enlargements recently noted.

FOREIGN TRADE OPPORTUNITIES

The Bureau of Foreign and Domestic Commerce has published the following items regarding opportunities for foreign business in textile materials. Reserved addresses may be obtained from the Bureau and its branch offices. Request for each opportunity should be on a separate sheet and the file number given.

Cotton and linen sewing thread, No. 15597: An American consul in Europe writes that a business man in his district wishes to represent American manufacturers of cotton and linen sewing thread. Quotations are requested in the French currency, and, if possible, c. i. f. port of delivery. Correspondence should be in French. Samples of the thread may be seen at the Bureau of Foreign and Domestic Commerce and its branch offices. Reference is given.

Hosiery, underwear, and neckwear, No. 15612: The commercial agent of the Bureau of Foreign and Domestic Commerce in New York City has transmitted a letter from a firm in that city stating that its foreign office is in need of hosiery, underwear, and neckwear lines for sale in that country. A copy of the complete report may be had on application to the bureau or its branch offices.

Silk remnants, etc., No. 15632: An American consular officer in Russia reports that a firm of silk manufacturers in his district wishes to find a market in the United States for the sale of silk remnants, silk combings, and silk cardings. Correspondence may be in Russian or in French.

Cotton, woolen, and silk cloth, No. 15635: A firm in Russia has informed an American consular officer that it wishes to form commercial relations with American manufacturers of cotton, woolen and silk cloth. The firm wishes to receive samples, prices, terms of payment, etc.

Hosiery machinery, No. 15636: An American consular officer in Australia reports that a business man in that country is in the market for the latest seamless automatic hosiery machinery for making socks and stockings.

Calico threads, shirts, etc., No. 15666: An American consular officer in England reports the name and address of a firm in Central Africa which wishes to purchase in the United States 30-inch blue drills; 36-inch unbleached gray calico; 30-inch blue duck; unbleached cotton sheeting; cheap prints; Harvard shirtings; cheap cotton shirts; cotton handkerchiefs; cotton undershirts (vests); sewing thread, put up in hanks or on cards about 10 yards each; and beads. The firm wishes information as to the weight of the calico per 100 yards, and as to freight rates to Chinde, Portuguese East Africa. Samples and prices should be sent at once.

Sewing and knitting machines and aluminum kitchen ware, No. 15667: A business man in

Russia informs an American consular officer that he is in the market for sewing and knitting machines and parts therefor and aluminum kitchen ware. Catalogues and price lists should be sent at once. Correspondence should be in the German or Russian language.

Woolen yarns, No. 15711: A merchant in Greece informs an American consul that he desires to get into touch with American exporters of white and colored woolen yarns, in bobbins suitable for weaving in hand looms and for knitting, and for making woolen rugs and druggets. It is stated that the firm has indicated that it is willing to do business on f. o. b. New York basis, with cash against shipping documents. Samples of various woolen yarns, together with quotations, etc., should be sent at once.

Raw cotton, textiles, shoes, and leather, No. 15717: A firm in one of the neutral European countries has informed an American consular officer that it desires to be put in communication with reliable manufacturers and exporters of raw cotton, textiles, shoes and leather. References are given.

Absorbent cotton and surgical accessories, No. 15736: A firm of commission agents in Europe informs an American consul that it is anxious to form commercial relations with American exporters of absorbent cotton, in bales, and rubber and metal surgical accessories.

Torchon lace, No. 15372: An American consular officer in Canada reports the name and address of a merchant in his district who desires to be put in touch with manufacturers of, or dealers in, torchon laces, or imitations thereof. It is stated that this man is now engaged in a retail business and wishes to establish a wholesale department. A sample of the material may be examined at the Bureau of Foreign and Domestic Commerce or its branch offices. Bank reference is given.

Underwear, No. 15728: A firm in the United Kingdom has informed an American consul that it wishes to purchase fleece-lined cotton knitted underwear for women.

Condensed milk and cotton thread, No. 15693: An American consul in the Far East reports that a firm in his district wishes to be placed in direct communication with manufacturers of condensed milk and cotton thread.

Cloth, No. 15762: A firm in South America has informed an American consular officer that it wishes to receive samples and prices from American manufacturers of cloth similar to "Shackamaxon." Correspondence may be in English.

Haberdashery, etc., No. 15752: An American consular officer in the West Indies reports that an American manufacturers' agent wishes to represent manufacturers of men's wear, furnishings, dry goods, notions, and novelties. It is stated that the man speaks Spanish and has a good knowledge of Latin-American trade conditions.

Cotton goods, knit goods, and ready-made clothing, No. 15767: An American consular officer in Europe reports that he has had numerous inquiries for the names and addresses of American manufacturers and exporters of cotton goods, knit goods, and ready-made clothing. He requests that American manufacturers who may be interested in the export business supply him with their names and addresses, and their catalogues, together with detailed information relative to their respective lines, and the terms upon which they are prepared to do business. This would enable the foreign buyer to place rush orders.

TREASURY DECISIONS

T. D. 35166. Feb. 27, 1915. Macrame towels. Towels with fringes formed by the omission or withdrawal of the weft threads, and the warp threads of the fringe then tied in various elaborate designs with separate threads introduced, dutiable at the rate of 60 per cent. ad valorem under paragraph 358, tariff act of 1913.

T. D. 37354. Feb. 23, 1915. Flax Card Cloth, Plain Woven Fabrics. Protests 760945, etc., of Howard Bros. Mfg. Co. et al., Boston. Card cloth composed of flax and wool, classified as manufactures of flax under paragraph 284, tariff act of 1913, was claimed dutiable as plain woven fabrics (par. 283). Protests overruled. Cooper, General Appraiser. . . . The only question for decision is whether or not this is a plain woven fabric. The several protests were tried at Boston on different dates, but the records in the several cases were consolidated and our decision is based on all the evidence produced. The testimony of the witnesses for the importers and the Government is in direct conflict. Two well-qualified witnesses testified that the fabric is plain woven, and two equally qualified witnesses testified that it is not plain woven. The fabric is thick and heavy, and the interlacing of the warp and filling threads is difficult to trace, but a careful visual examination of the samples and the diagram of the weave made by one of the witnesses, which is a part of the record, shows that the goods are double faced, that there is a double set of filling threads, and that the warp thread passes over one and under four threads throughout the fabric as in a twill. It has been held that plain woven means plain as distinguished from twilled or figured effects.

T. D. 35184. March 3, 1915. Drawback on cotton piece goods. Drawback on bleached and mercerized cotton piece goods produced by the Bellman Brooks Bleachery Co., of Fairview, N. J., from cotton piece goods imported in the gray for the account of the Sea Island Mills, of N. Y.

T. D. 35199. March 9, 1915. Drawback on automobile top material. Drawback on automobile top material manufactured by Messrs. L. C. Chase & Co., of Boston, Mass., with the use of imported alpaca, luster and cotton grandrelle cloths.

T. D. 35217. March 13, 1915. Drawback on dyed piece goods. T. D. 33597 of June 5, 1912, extended to cover woolen and woolen and cotton piece goods imported in the gray and dyed for the account of J. Einstein (Inc.) of New York, by Kennedy & Britt, of Philadelphia, Pa.

Recent Textile Patents

BOBBIN RACE and Cover. 1,129,965. Frank Ehrendriech, Belvidere, Ill.

BOBBIN, Producing a Filled. 1,129,669. Clarence A. Hammond-Knowlton, New York.

COMBER, Heilman-type Cotton. 1,131,976. George M. Whitin, Whitinsville, Mass.

CLOTH CUTTING Machine. 1,130,369. Emanuel W. Bortman, Norristown, Pa.

DYEING APPARATUS. 1,131,084. Albert and Julius A. Rau, Clifton, N. J.

DYEING FABRICS and Similar Purposes, Jigger for. 1,131,269. Howard L. Quick, New York.

DYEING MACHINE. 1,129,128. William H. Shainline, Norristown, Pa.

FABRICS, Apparatus for Treating Coated. 1,131,993. Benjamin F. Chamberlain, Boston, Mass.

FABRICS, Method of Treating. 1,131,270 Howard L. Quick, New York.

FABRICS, Satinizing Cotton. 1,132,001. Hermann Dutschke, Elberfeld, Germany.

FABRICS, Treatment of Open-Mesh Textile. 1,133,062. Marius Ratignier, Lyon, France.

KNITTING MACHINES, Clutch Mechanism for Fashioning. 1,129,940. Melchior Zwicky, Wyomissing Borough, Pa.

KNITTING MACHINE Cam Cylinder. 1,131,619. Albert E. Stewart, Franklin, N. H.

KNITTING MACHINE, Circular. 1,131,583. Frank Wilcomb, Norristown, Pa.

KNITTING MACHINE Take-up Device. 1,129,935. Louis N. D. Williams, Ogontz, Pa.

KNITTING MACHINE Take-up Mechanism. 1,133,078. Louis N. D. Williams, Ogontz, Pa.

KNITTING MACHINE Take-up Device 1,133,079. Louis N. D. Williams, Ogontz, Pa.

KNIT UNDERGARMENT. 1,130,216. Burt W. Thayer, Minneapolis, Minn.

KNITTING MACHINE, Hosiery. 1,129,288. Felix Godin and George P. Bosworth, Central Falls, R. I.

KNITTING MACHINES, Pick-block Adjustment for. 1,129,290. Eugene M. Gunning, Pawtucket, R. I.

KNITTING MACHINE, Circular. 1,129,261. Frank Wilcomb, Norristown, Pa.

KNITTING MACHINES, Electric Stop Device for. 1,129,614. Frederick W. Sumner, Canton, Mass.

LOOM Stop Motion. 1,131,833. Thomas Goodwin, Fall River, Mass.

LOOMS, Construction of Shuttles and Shuttle-boxes in Overpick Weft Replenishing. 1,032,893. John Whittaker, Rishton, Eng.

LOOM Weft-parter. 1,131,841. Simeon S. Jackson, Boston, Mass.

LOOMS for Weaving. Take-up Motion of. 1,130,599. Denis M. Hollins, Blackburn, Eng.

LOOM for Weaving Tubular Fabrics. 1,129,642. Abel E. Chernack, Pawtucket, R. I.

LOOM Filling-end Controller. 1,132,227. Edward S. Stimpson, Hopedale, Mass.

LOOM. 1,132,223. Isaac Snow, Lawrence, Mass.

LOOM Warp Stop Motion. 1,129,810. Dana Osgood, Hopedale, Mass.

LOOM Shuttle. 1,129,193. Hudson W. Hakes, Millbury, Mass.

MOHAIR FABRIC. 1,131,259. William S. Nutter, Sanford, Me.

SHUTTLE BOBBIN Holder. 1,132,664. Albert Mandeville, Ware, Mass.

SPINNING Machine Cleaner. 1,129,312. Gus F. Roberts, Fries, Va.

SPINNING MACHINE. 1,131,580. Paul Wallse, Philadelphia, Pa.

SPINNING MACHINES, Stop-motion for Worsted. 1,132,526. Luther Robinson, Boston, Mass.

WATERPROOF Materials and Coatings, Making. 1,132,687. John F. Ryan, Winthrop, Mass.

WATERPROOFING of Fabrics, Yarn and Other Materials. 1,131,929. Alice M. Hart, London, Eng.

WEAVING Ribbon and Fabrics, Apparatus for. 1,132,440. Louis Chomier, St. Etienne, France.

WINDING MACHINE, Spool. 1,132,739. Campbell Scott, Yonkers, N. Y.

WOVEN FABRIC and Weaving the Same. 1,132,508. Charles G. Bates, London, Eng.

YARN and the Like, Treating. 1,131,623. George D. Burton, Boston, Mass.

TRADE MARKS RECENTLY FILED FOR REGISTRATION

82,548. Knitted underwear. Mark: Unis. Owner: Union Mills, New York.

82,919. Clothing. Mark: Federation. Owner: August E. Steffen Co., Davenport, Ia.

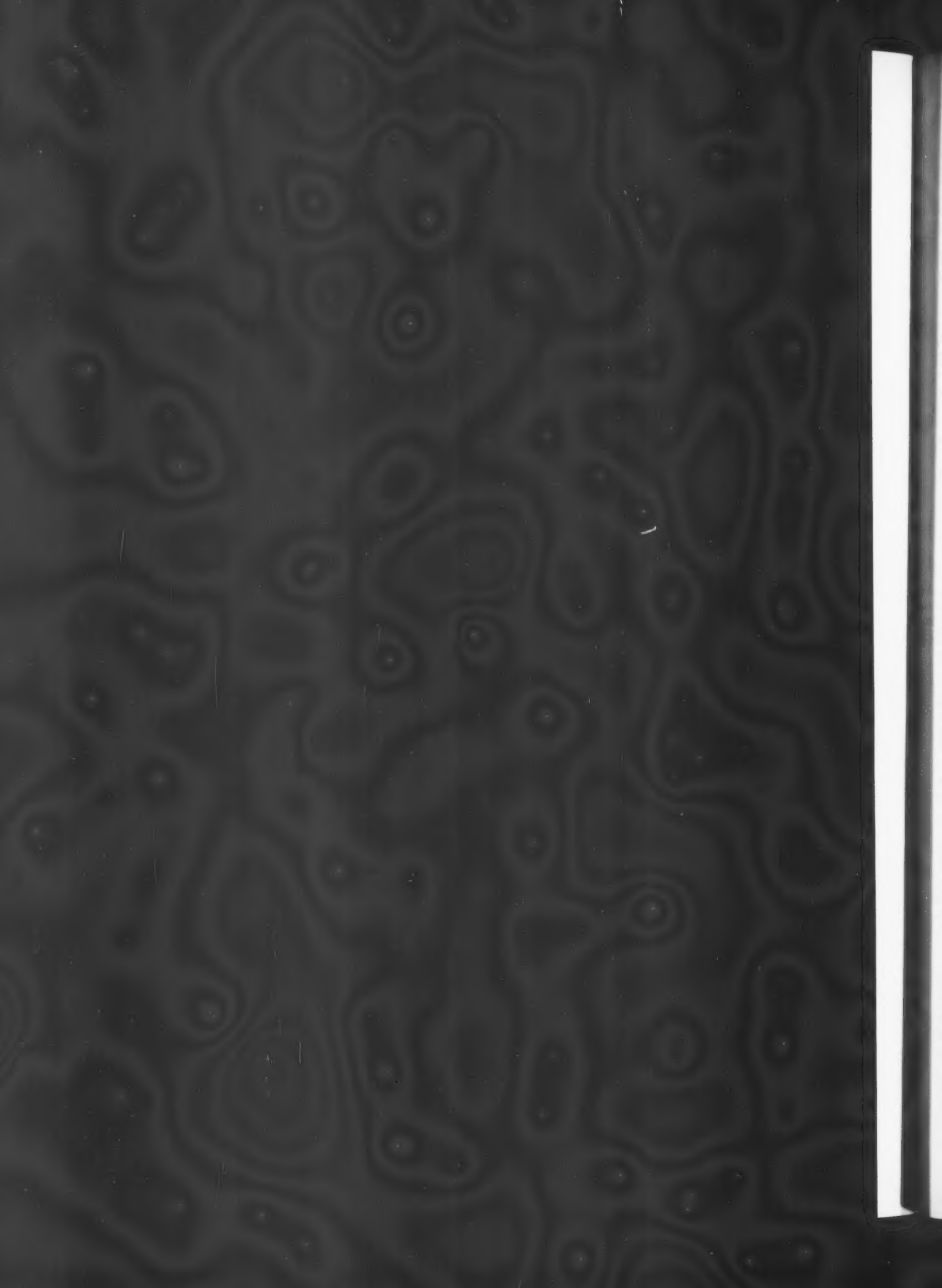
83,170. Textile rugs. Mark: Keystone. Owner: Dickey & McMaster, Philadelphia, Pa.

83,177. Cotton piece goods. Mark: Best-Maid. Owner: King Philip Mills, Fall River, Mass.

83,194. Bleached muslin. Mark: Sea Cliff. Owner: Carson-Pirie, Scott & Co., Chicago, Ill.

83,195. Bleached muslin. Mark: Thoroughbred. Owner: Carson, Pirie, Scott & Co., Chicago, Ill.

83,217. Handkerchiefs. Mark: Clupeco. Owner: Cluett-Peabody & Co., Troy, N. Y.



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DIRECT IMPORTERS OF EGYPTIAN COTTON

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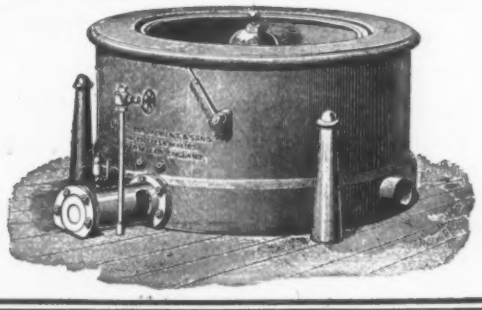
Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



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DYEING, BLEACHING and SCOURING MACHINES

DURABLE K-W UNIVERSALLY USED

THE fact that Klauder-Weldon machines have always been recognized as the standard of economic efficiency in Dyeing, Bleaching and Scouring is sufficient reason to believe that they have merits that justify your most careful investigation.

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Case Mead Building

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Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Absorbent Cotton Wool Machinery.
Tatham, William, Ltd.

Air Moistening System.
——See Humidifying Apparatus.

Albone.
Roessler & Hasslacher Chemical Co.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Charles T.
Myrick, J. W. H.

Asbestos Covering.
Johns-Manville Co., H. W.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Mch. Co.
Tatham, William, Ltd.
Woonsocket Machine & Press Co.

Back Filling.
International Pulp Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Smith & Furbush Mch. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Bankers.
Brown Bros. & Co.

Baskets.
Diamond State Fibre Co.
Lane, W. T., & Bro.
Standard Fibre Co.

Beamers.
Crompton & Knowles Loom Works.

Bearings.
——See Ball Bearings and Roller Bearings.

Belting.
Bond, Charles, Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
Johns-Manville Co., H. W.
Schieren, Chas. A., Co.
Williams, I. B., & Sons.
——See also Mill Supplies.

Belting, Leather.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belting, Link.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belt Cement.
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Schieren, Chas. A., Co.

Belt Dressing.
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Stephenson Mfg. Co.

Belt Lacing, Leather.
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Electro Bleaching Gas Co.
Roessler & Hasslacher Chemical Co.
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Wolf, Jacques & Co.
Worden Chemical Works.

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Philadelphia Drying Machinery Co.
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Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Wks.
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Peerless Co.
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U. S. Hoffman Co.

Dye House Cans.
Diamond State Fibre Co.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.
Diamond State Fibre Co.
New England Tank & Tower Co.

Dye Kettles.
New England Tank & Tower Co.
Stearns, A. T., Lumber Co.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Mch. Co.
New England Tank & Tower Co.

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Arteaux, F. E., & Co.
Badische Co.
Bayer Co., The, Inc.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
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Johnson, Chas. A., & Co.
Kalle Color & Chemical Co., Inc.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
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Sykes, Walter F., & Co.
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Worden Chemical Co.

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International Filter Co.
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Royersford Foundry & Machine Co

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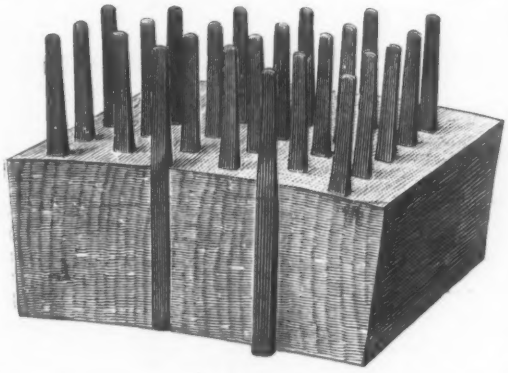

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If You Want the Picker That Leads

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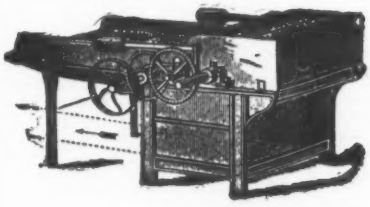

Lumpers

Wool and Waste Dusters

Rag Dusters, Nappers

Improved Cloth Measuring Machines

Lumper and Duster Cylinders Refilled and Repaired

Motors and Textiles

should be uppermost in your mind. ¶We cannot tell you anything about Textiles, but we can tell you things you should know about our motors. ¶We have an interesting booklet on Power Transmission in the Textile Mill, which is yours for the asking.

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Johns-Manville Co., H. W.
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Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits).
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Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

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Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

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Hunt, Rodney, Machine Co.
Merrow Machine Co., The.
Nye & Tredick Co.
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Stafford & Holt.

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Ainslie Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
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Domestic Machinery Works.
Eppler, John, Machine Works.
Gormly, Robert.
Hemphill Mfg. Co.
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S. K. F. Ball Bearing Co.

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Lug Straps.
Graton & Knight Mfg. Co.

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Gerry, George, & Son.
Schofield, William, Co.

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Elliot & Hall.
Parks & Woolson Machine Co.

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Stephenson Mfg. Co.

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Heard, Smith & Tennant.
Munn & Co.

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Calmore & Co.

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Beckley Perforating Co.

Peroxide of Hydrogen.
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Roessler & Hasslacher Chemical Co.

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Spindler, E. O.
Universal Winding Co.

Wire Specialties.
Hamilton, Thomas.

Wood Pulleys.
Saginaw Manufacturing Co.

Wool.
Atkinson, Haserick & Co.

Wool Bagging Machines.
Dodge, C. S.

Wool Cleaning Compound.
Ford, J. B., Co.

Wool Combing Machinery.
Atkinson, Haserick & Co.
Crompton & Knowles Loom Works.
Leigh & Butler.
Riley, C. E., Company.

Wool Dryers.
——See Drying Machinery.

Wool Oil Compound.
Marston, John P.

Wool and Waste Dusters.
Dodge, C. S.
Leigh & Butler.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

Woolen and Worsted Machinery.
Altemus, Jacob K.
Arlington Machine Works.
Atkinson, Haserick & Co.
Birch, Albert, Somerville Machine Works.
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Fales, L. F.
Hood, R. H., Co.
Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Mach. Co.
Leigh & Butler.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Somerville Machine Works (Albert Birch, prop.).
Textile-Finishing Machinery Co.
Woonsocket Machine & Press Co.

Wool Oils.
Borne, Scrymser Co.
Seydel Mfg. Co.

Wool Washing, Preparing and Drying Machinery.
Atkinson, Haserick & Co.
Hunter, Jas., Machine Co.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
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Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Speed & Stephenson.
Tolhurst Machine Works.

Yardnumbering Machinery.
Parks & Woolson Machine Co.

Yarn Conditioning Machines.
Emerson Apparatus Co.
Sargent's, C. G., Sons.
Suter, Alfred.

Yarn Dryers.
——See Drying Machinery.

Yarn Testers.
Birch Bros., Somerville Mach. Wks.
Scott, H. L., & Co.
Suter, Alfred.
Torsion Balance Co., The.

YARNS, THREADS, ETC.

Carpet Yarns.
Lees, Jas., & Sons Co.

Cotton Yarns.
Florence Thread Co.
Jamieson, Jas. B.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Mitchell, Jas. E., & Co.
Montgomery, J. R., Co.
Monument Mills.
Orswell Mills.
Porter, T. J., & Sons.
Sternberg, Fred, & Co.
Street, J. F., & Co.
Whitman, William, Co.

Flax, Hemp, Jute and Ramie.
Fawcett, Hughes.
Littauer, Ludwig.
Mindlin & Rosenman.
Porter, T. J., & Sons.
Ramie Agency.
Sternberg, Fred, & Co.

Gassed Yarns.
Florence Thread Co.
Jamieson, Jas. B.
Littauer, Ludwig.
Mindlin & Rosenman.
Sternberg, Fred, & Co.
Whitman, William, Co.

Glazed Yarns.
Florence Thread Co.
Jamieson, Jas. B.
Littauer, Ludwig.
Mindlin & Rosenman.
Orswell Mills.
Sternberg, Fred & Co.
Whitman, William Co.

Harness Twine.
Fawcette, Hughes.
Moore, C., & Co.
Sternberg, Fred, & Co.

Hosiery and Knitting Yarns.
Florence Thread Co.
Hyde, E. S.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Mitchell, Jas. E., & Co.
Monument Mills.
Porter, T. J., & Sons.
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Whitman, William, Co.

Linen Yarns.
Fawcett, Hughes.
Lindsay, Thompson & Co., Ltd.
Porter, T. J., & Sons.

Mercerized Yarns.
Aberfoyle Mfg. Co.
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Florence Thread Co.
Jamieson, Jas. B.
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Mindlin & Rosenman.
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Sternberg, Fred, & Co.
Whitman, William, Co.

Mohair Yarns.
Littauer, Ludwig.
Mindlin & Rosenman.
Montgomery, J. R., Co.
Whitman, William, Co.

Novelty Yarns, Tinsels, Silk Noils, Etc.
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Jamieson, Jas. B.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Montgomery, J. R., Co.
Nonotuck Silk Co.
Sternberg, Fred, & Co.
Villa, Stearns & Co.

Silk Yarns.
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Cheney Bros.
Nonotuck Silk Co.
Ryle, Wm., & Co.
Sauquoit Silk Mfg. Co.
Street, J. F., & Co.
Suter, Alfred.
Villa, Stearns & Co.

Silk Yarns (Artificial).
Littauer, Ludwig.
Mindlin & Rosenman.

Woolen and Merino Yarns.
Eaton Rapids Woolen Mills.
Hyde, E. S.
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Littauer, Ludwig.
Mindlin & Rosenman.
Shirley, Harold R.
Street, J. F., & Co.

Woolen Yarns.
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Littauer, Ludwig.
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Lees, Jas., & Sons Co.
Littauer, Ludwig.
Mindlin & Rosenman.
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Whitman, William, Co.

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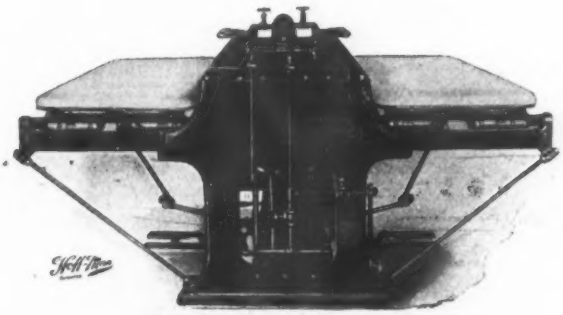

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UNITED STATES HOFFMAN CO., SYRACUSE, N. Y.

Publishers' Page

Advertisers Discounting Peace

Reflecting either an increase in business or the "forward look" of manufacturers who are discounting peace, we are glad to report decided increases in advertising for this issue of the Textile World Record.

Eight of our regular advertisers have increased their space, making for the eight a gain of three and one-half pages.

Four of our old advertisers, who had temporarily discontinued have renewed, taking a total of two and one-third pages of space.

Eight new advertisers begin with this issue, taking space totalling five pages.

These indications of improvement in business conditions are encouraging, not only to us but to all who deal with textile mills, as it shows that manufacturers, who are always careful about expenditures for advertising, consider this an opportune time to increase their advertising and selling efforts.

These new advertisements also offer increased opportunities for our subscribers to get in touch with concerns who are doing the best they can to help mill men do more and better work, for their advertising in this medium cannot be successful unless what is offered will render a real service to Textile World Record subscribers.

Important Textile Conventions

Three very important and interesting Conventions are to be held between April 13th and May 5th. On account of the proximity of dates the Textile World Record, instead of having its usual Convention issues in April and one in May, will have but one Convention issue this Spring, and this will be the May number—in effect a "double Convention issue."

The Conventions to be held are:—

April 13th and 14th: The American Cotton Manufacturers Association, at Memphis, Tenn.

April 28th and 29: The National Association of Cotton Manufacturers, at the Copley Plaza, Boston, Mass.

May 4th, 5th and 6th: The National Association of Hosiery and Knit Goods Manufacturers, at Philadelphia, Pa.

In conjunction with the latter the annual exhibition of knitting machinery and kindred supplies will be held that week and every indication points to a very large and important affair.

On account of the interest manifested and the importance of these conventions we intend making the May issue of the Textile World Record complimentary to them.

In addition to our regular quota of interesting and instructive information, we will report fully the doings of these three conventions, the papers read there, and will also illustrate and describe the exhibition in a liberal manner.

This will make this particular issue of unusual interest as it will contain in one complete number much of value to the trade. We will print an increased edition. Notwithstanding the increased circulation our regular advertising rates will prevail.

This "double Convention number" offers an unusual opportunity to advertisers who are not now using space in the Textile World Record and also to those who are using space, but who wish to run some special advertisements.

This fact has already been recognized and appreciated by many of our customers.

If you wish to run a special advertisement or increase the size of your present advertisement for this one issue please advise us promptly as we need to know the total number of pages required considerably in advance of the date of publication.

Monthly Circulation Statement

Of this edition over 6,200 copies are printed and all are needed.

The Textile World Record is a Member of the Audit Bureau of Circulations.

CLOTH STRENGTH TESTERS FOR FOREIGN ORDERS

Mills working on foreign orders frequently have the specifications according to foreign standards. To meet this requirement Henry L. Scott & Co., 223 Eddy St., Providence, R. I., builders of testing apparatus, are now furnishing machines with dials reading in pounds and with kilogram and decimal readings at each pound mark of the dial. These are furnished in the 200 and 250 pound sizes only. They are also prepared to furnish the rest of the machine to meet the French, Russian or United States standards as to width of sample and length of distance between jaws. A stretch indicator can also be supplied for obtaining the net stretch of the material. These are all points which are important to those handling foreign orders.

—÷—

FACTS AND GOSSIP.

.....

Massachusetts, Salem. The American Moistening Company, Boston, Mass., has been awarded the contract for the entire humidifying equipment of the new weaving shed of the Naumkeag Steam Cotton Company, Salem, Mass. The contract further calls for a complete air-cleaning system of 72 stations, the humidifying equipment being a compressed air system specially designed for this mill, which is said to be the largest concrete weave shed ever constructed. Messrs. Lockwood Greene & Company, are the engineers.

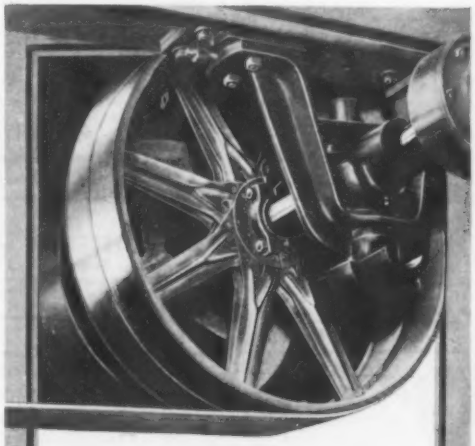
North Carolina, Rockingham. The dyeing department of Steele's Mills, manufacturers of print cloths and chambrays, has been discontinued temporarily, as the lines of chambrays have been dropped for the present.

Oklahoma, Muscogee. H. W. Fairbanks, an engineer of Dallas, Texas, is interested in the plans of Muscogee promoters to build a cotton mill at Muscogee. Mr. Fairbanks built the Postex Cotton Mills at Post City, Texas, for the late C. W. Post of Battle Creek, Mich., and was formerly vice-president and manager of that mill. He has lately been interested in organizing a $250,000 company to build a mill at Temple, Texas, but little progress has been made on that project.

Oklahoma, Tulsa. A corporation has been organized under the name of the Western Rope & Cordage Company with capital stock of $10,000, by B. M. Gossel, R. J. McEwen and A. C. Leftwich.

Oregon, Bandon. A. W. McNair and George P. Topping, of Bandon, are interested in the starting up of the Bandon Woolen Mills with E. H. Tyran of San Francisco. Details of the reorganization have not been announced.

Oregon, Eugene. The Commercial Club and Harry Stevenson are going ahead on the lace mill project which has received considerable support from business men. Mr. Stevenson was formerly connected with American Lace Mfg. Co., Elyria, O., and the Zion Lace Industries, Zion City, Ill. His plan is to organize a company with capital stock of $150,000 and built and equip an eight-machine plant.



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THIS is a day-in-and-day-out **American Pulley** performance — at the Waltham Bleaching and Dye Works, Waltham, Mass.

Because of constant, reliable service like this, pulley users, themselves, have built the sales of **Americans** to over *two million.*

American Pulleys can keep "everlastingly at it" because *all* their strength is concentrated on power transmission. They don't *fan* the air; they don't consume their strength in sustaining their own weight; therefore, they *concentrate all* their strength on power *transmission.*

We will gladly confer with you or send booklets.

The American Pulley Co.

Main Office and Works, Philadelphia

New York Chicago Boston

AMERICAN
Steel Split Pulleys

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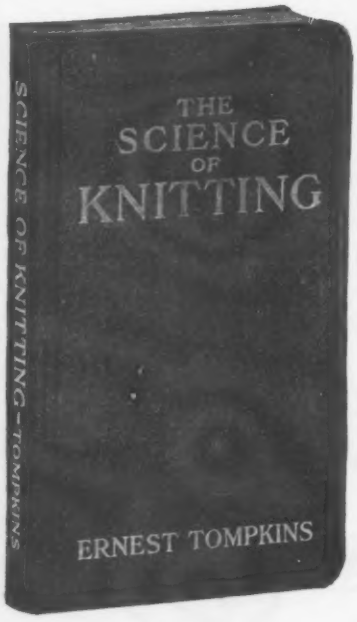

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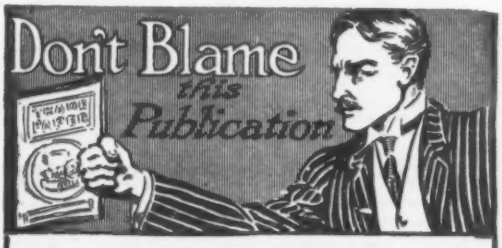

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Overseer of Dressing, Winding or Spooling. Has worked on worsteds, cotton worsteds, woolens and silk; both wet and dry work; familiar with Davis & Furber and Cleveland machines; 45 years of age; married; good reference.
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Superintendent of Woolen Mill. Has worked on kerseys, broad cloths, meltons, cloakings, overcoatings, dress goods, cassimeres and novelties; familiar with about all makes of machinery; 50 years of age; married; will not go West, South or to Canada; good reference.
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Agent or Superintendent of Cotton Mill. Has worked on all classes of goods; 50 years of age; married; good reference.
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Boss Dyer in Woolen Mill. Has worked on all classes of woolen goods either in the piece, yarn or raw stock; will not go West, South or to Canada; 45 years of age; married; good reference.
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Overseer of Knitting. Has worked on silk, cotton, artificial silk, worsted, wool and wool mixtures; light to heavy weight hosiery; familiar with footers, ribbers, loopers; flat, sweater and button-hole machines; 30 years of age; married; prefers Wis., Mich., Ohio, Ind., Ill., Ia. or Minn.; good reference.
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Assistant Designer in Woolen Mill. Has worked on woolens and worsteds; familiar with Crompton and Knowles loms; 35 years of age; married; good reference.
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Overseer of Dyeing in Woolen Mill. Has worked on raw stock, worsted and cotton yarns, slubbing, piece dyes, men's wear and dress goods; 42 years of age; married; good reference.
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Designer and Superintendent of Woolen Mill. Would take position of manager in small mill; conversant with all makes and classes of tweeds in highest, medium and lowest class of stocks; worked during past sixteen years on suitings, overcoatings, cloakings, plaid rugs, worsted suitings, coverts, meltons, trouserings and all military goods; experience in Scotch, English and American trades; familiar with practically all English and American woolen machinery; 36 years of age; married; will not go South or to Canada; good reference.
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Overseer of Dyeing in Cotton Mill. Has worked on denims, tickings, ginghams, coverts, etc.; familiar with long and short chain warp machines, Klauder-Weldon, Delahunty rotary Delahunty and Chattanooga vacuum on cotton; 49 years of age; married; good reference.
6418, Textile World Record, Boston, Mass.

Boss Weaver in Cotton Mill. Has worked on medium and heavy sheetings, drills, twills, crashes, sateens, light and heavy weaves, chambrays, ginghams, light and extra heavy duck goods, bags, etc.; familiar with Stafford, Draper, Lowell, Crompton, Knowles and Whitin looms; 34 years of age; married; good reference.
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Overseer of Carding in woolen mill. Has worked on all kinds of goods; familiar with Davis & Furber and Lombard machines; 45 years of age; married; will not go to Me., Pa., N. Y., N. J., West, South or Canada; good reference.
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Second Hand in Finishing Room in Woolen Mill. Has worked on all classes of woolens, fancy dress-goods and suitings; familiar with all makes of machinery; 26 years of age; married; will not go to Vt. Pa., West, South or Canada; good reference.
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Overseer of Dyeing in Woolen Mill. Has worked on raw stock, yarn and pieces; familiar with all makes of machinery; 41 years of age; married; good reference.
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Overseer of Burling and Mending in Woolen Mill. Would consider position as second hand of dry finishing. Has worked on all classes of woolens, worsteds, cotton worsteds and dress goods; 29 years of age; married; will not go to Vt., N. Y., N. J., West, South or Canada; good reference.
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Woolen Superintendent or Designer. Would consider position as boss weaver also; has worked on worsted and woolen men's suitings, overcoatings, plain and plaid backs, piece dyes, coverts, cloakings and dress goods; familiar with Crompton & Knowles looms; Davis and Furber cards and mules; 30 years of age; married; will not go West or South; good reference.
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Overseer of Weaving in Cotton Mill. Has worked on all classes of white cotton; familiar with all kinds of American looms; 35 years of age; married; good reference.
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Overseer of Weaving in Cotton Mill. Would consider good position as second hand; has worked on ducks, sheetings, drills, twills, sateens and all heavy white goods; familiar with Draper, Lowell and Stafford looms; 28 years of age; married; good reference.
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Overseer of Worsted Combing on English System. Has worked on Australian wool, carpet wool, mohair, alpaca and camels hair; familiar with Lister and Noble combs and gill boxes; will not go to R. I., Conn., Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
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Millwright or carpenter; prefers a position as foreman; 32 years of age; married; will not go to Me., N. H., Vt., Pa., N. J., West, South or to Canada; good reference.
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Master Mechanic; familiar with engines, generators, motors, etc.; 42 years of age; married; good reference.
6311, Textile World Record, Boston, Mass.

Assistant Designer in cotton mill; would accept a position on jacquards or any other line of goods; could assist in office work; familiar with cotton calculations, etc.; 22 years of age; textile school graduate; will not go South or to Canada; good reference.
6312, Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on fancies, jacquards, lappetts, 3-4-5 harness twills, sateens, shirtings, chambrays, yarn from 20s to 85s, width 26 to 90 inches; familiar with Draper, Crompton, Whitin, Colvin, Mason and Stafford automatic looms; 32 years of age, married; will not go West or South; good reference.
6279, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has colored everything in the line of worsted piece dyes, silk effects, raw stock and yarn; 50 years of age, married; familiar with all makes of machinery; good reference.
6346, Textile World Record, Boston, Mass.

Second Hand of Carding or boss comber in cotton mill; has worked on fine and coarse yarns; familiar with all Whitin card room machinery; Woonsocket speeders; Howard & Bullough, drawing and pickers; Dobson & Barlow and Kitson pickers and Hetherington cards; 21 years of age; good reference.
6366, Textile World Record, Boston, Mass.

Second Hand in finishing department in woolen mill; has worked on serge dress goods, serge and alpaca linings, also Palm Beach cloth; 30 years of age, married; will not go to Pa., West, South or to Canada; good reference.
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Assistant Superintendent in knitting mill; has worked on silk, cotton and woolen half hose and full fashioned hose, also ladies' ribbed underwear; familiar with all kinds of hosiery machinery and Scott & Williams underwear machinery; 22 years of age; good reference.
6368, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all classes of goods; familiar with American makes of machinery; 37 years of age, married; will not go to Me., N. H., South or to Canada; good reference.
3503, Textile World Record, Boston, Mass.

Assistant Designer in Woolen Mill; has worked on cassimeres, satinetes and meltons; familiar with dryers, extractors, dyeing kettles, presses, shears, mixes, measuring and carding machinery; 21 years of age; will not go to Pa., N. Y., N. J., West, South or Canada; good reference.
6378, Textile World Record, Boston, Mass.

Boss Spinner in Woolen Mill; has worked on all kinds of yarn; familiar with Johnson & Bassett and Davis & Furber machines; 50 years of age; married; good reference.
6393, Textile World Record, Boston, Mass.

Assistant Manager or Supt. Cotton Mill; has worked on fine and coarse, white and colored goods; 44 years of age; twenty years' cotton mill experience; good reference.
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Shipping or Office Clerk; would consider position as percher and stockkeeper on finished or grey goods; 24 years of age; married; wife is a mender; good reference.
6395, Textile World Record, Boston, Mass.

Boss Weaver in Woolen Mill; has worked on all kinds of woolen and worsted goods; familiar with Knowles fancy and cam looms, also Crompton & Thayer looms; will not go to Me., Vt., West, South or to Canada; good reference.
6396, Textile World Record, Boston, Mass.

Boss Weaver in Cotton Mill; has worked on coarse and fine yarns, sheetings, shirtings, colored, velvet and corduroy goods, fine lawns, ginghams, sateens, drills, chambrays, flannels, duck and fancy goods; familiar with Crompton & Knowles looms, drop boxes, dobby and Whitin looms; is an expert on Draper looms; 38 years of age; married; will not go to Pa., West, or South; good reference.
6397, Textile World Record, Boston, Mass.

Overseer of Dry Finishing; has worked on cassimeres, coverts, broad cloths, worsteds, venetians, dress goods, kerseys, men's wear and chinchillas; familiar with all kinds of finishing machinery; 38 years of age; married; will not go to N. H., Vt., or to Canada; good reference.
6398, Textile World Record, Boston, Mass.

Assistant Supt. and Cotton Classer; would consider position as overseer or second hand of carding or weaving; has worked on plain, fancy and novelty goods; familiar with Whitin, Howard & Bullough, Dobson & Barlow, Crompton & Knowles machines; will not go West, South or to Canada; 22 years of age; good reference.
6399, Textile World Record, Boston, Mass.

Designer, Designer and Assistant Supt., Designer and Supt., or Designer and Overseer of Weaving; has worked on worsted and woolen dress goods, cloakings, worsted and woolen men's suitings, overcoatings, piece dyes, mixtures, plaid backs, chinchillas, kerseys, cotton and wool warps, bed and horse blankets; familiar with Knowles, Crompton, Furbush and plain looms; various cards and mules; fullers, rotary and all machinery pertaining to wet and dry finishing; 50 years of age; married; will not go to Canada.
6400, Textile World Record Boston, Mass.

Overseer of Cutting; has worked on all kinds of knit goods; 36 years of age; married; good reference.
6401, Textile World Record, Boston, Mass.

Superintendent of Knitting Mill; would consider position as boss knitter; has worked on hosiery, underwear, rubber linings, eiderdowns, astrachans, chinchillas, fleeces, buffalo robes, plush, sweaters, and all kinds of plain and fancy knit goods; familiar with Crane, Tompkins, Charles Cooper and Robert Gormley knitting machines; also circular latch and spring needle and automatic strippers; 49 years of age; married; good reference.
6402, Textile World Record, Boston, Mass.

Overseer of Weaving; has worked on fancy and piece dyed worsteds, serges, cassimeres and flannels; familiar with Crompton & Knowles looms; 43 years of age; married; will go to Mass., R. I., and Conn.; good references.
6403, Textile World Record, Boston, Mass.

Boss Carder in Cotton Mill; has worked on cotton warps, 4s to 40s; familiar with American, Lowell, Saco-Pettee and old stationary cards and single fly frames; will not go South or to Canada; 43 years of age; married; good reference.
6404, Textile World Record, Boston, Mass.

Superintendent or Manager of Hosiery Mill; long experience in all grades of seamless hosiery; A-1 manager of help and a practical mill man but not a fixer; familiar with all makes of hosiery machinery; 45 years of age; married; good reference.
6405, Textile World Record, Boston, Mass.

Overseer of Bleaching; has worked on all kinds keeper in Cloth Room; has worked on plain goods, twills, fancy lenos, osnabergs and duck; familiar with all kinds of cloth room machinery; 26 years of age; will take position in the South only; good reference.
6406, Textile World Record, Boston, Mass.

Overseer of Bleaching.. Has worked on all kinds of cotton piece goods from fine organdy to heavy duckings; familiar with all kinds of kiers and machines for bleaching; will not go South; 50 years of age; good reference.
6407, Textile World Record, Boston, Mass.

Overseer of Dyeing; has worked on raw wool, raw cotton, rags, wool waste, woolen and worsted piece dyes; worsted, woolen and resist yarns; familiar with Klauder & Weldon yarn and stock machines; will not go to Canada; 46 years of age; married; good reference.
6408, Textile World Record, Boston, Mass.

Receiving Clerk, Traffic Manager, Shipping or Order Clerk; has worked on hosiery, rubber, underwear and silk spun yarns; familar with Lowell Machine Co.'s controllers and Atwood Machine Co.'s reels; 34 years of age; will not go to Canada; good reference.
6409, Textile World Record, Boston, Mass.

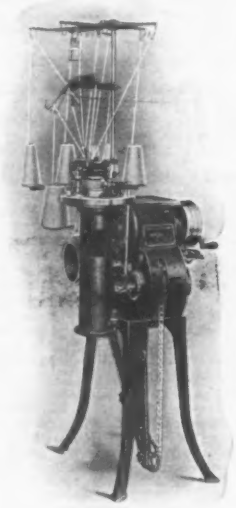
Overseer of Weaving in woolen mill; has worked on all classes of woolens and some worsteds; familiar with all Knowles looms; 29 years of age, married; will not go to Pa., West, South or to Canada; good reference.
6227, Textile World Record, Boston, Mass.

Machine Adjuster in stitching department; has worked on knit goods, also shirts and collars and experimental machine work; familiar with Singer, Union Special, Metropolitan, Wilcox & Gibbs, Reese button hole, Union button sewers and French loopers; 20 years of experience; 34 years of age, married; good reference.
6228, Textile World Record, Boston, Mass.

General Manager or superintendent of underwear mill; has worked on ladies' union suits 2 1/2 lbs.; men's 10 lb. two piece and union suits 7 1/2 to 14 lbs.; familiar with Campbell & Clute, Wildman and Scott & Williams machines; 50 years of age; married; good reference.
6229, Textile World Record, Boston, Mass.

Our Hosiery Machines

automatically set up and drop off each stocking and make the anti-ravelling course, and, in addition to the cost of transferring the cuffs of half hose and the sewing of the welts of women's hose, these machines effect very pronounced savings, for instance—in the case of half hose, the ordinary ribbed machine is eliminated entirely, and, of course, the first cost of this machine, its maintenance and floor space, together with the knitting waste, the cost of cutting the ribbed top and the ravelling waste, which in the ordinary practice is unescapable, are entirely saved. Transfer menders are altogether eliminated and the expense and annoyance of training expert help is avoided. In respect of the women's hose there is no expense for severing the stockings, no sewing machine operation and consequently no waste on account thereof and a marked decrease in loopers ravelling waste, due to the fact that the stockings are pressed off to a course and not left with a crooked unevenly cut edge.



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*Pennsylvania, Lebanon. W. F. Taubel, Inc., of Riverside, N. J., have negotiated for a lease of the extension to be constructed on the new building of the Central Market House Company. The extension will be built according to the ideas of the Taubel Company and will be especially adapted to the manufacture of hosiery. It was noted a week ago that W. F. Taubel, Inc., contemplated establishing a branch at Hightstown, N. J. The main plant is at Riverside, N. J., and branches are operated at Tamaqua, Shamokin, Mt. Carmel and Philadelphia, Pa.

Pennsylvania, Philadelphia. Jos. Saftlas has leased a portion of the building at 3143 Emerald St., in which he has installed six knitting machines on which he is manufacturing a line of fine silk knitted neckwear. The plant is run by gas and the production sold direct.

Pennsylvania, Philadelphia. The Unique Knitting Co., recently reported by us as having applied for a charter, have a floor in the building at 1220-32 N. Lawrence St., where they are installing 20 knitters, 6 ribbers and 6 loopers, which they will start up on infants' seamless, mercerized and silk hosiery. N. R. Kline will be in charge of the plant as superintendent.

Pennsylvania, Philadelphia. Nickels & Lauber Knitting Co. are fitting up a portion of the mill building at the N. E. corner of Marshall and Spring Garden Sts. with equipment for the manufacture of fine silk accordion and crochet reefers and neckwear. The plant contains 20 necktie and 5 reefer machines, which they will operate by electricity. The production will be sold direct.

Pennsylvania, Spring City. The Keystone Stocking Mills, with a capital of $25,000, E. C. Matlack, president; John Lindauer, secretary, and John Scott, Jr., treasurer, are arranging to start a plant in this town for the manufacture of seamless cotton and mercerized hosiery. The company has leased the old Urner Mills, in which they will install, as an initial equipment, 100 knitting machines of a new pattern, and 25 loopers, on which they propose to make lines of staples and novelties in hosiery which they will sell through their N. Y. office at 74 Leonard St. The concern has already booked considerable orders, and will be started up on or about May 1. Electric power will be used for operating the plant and the interior of the mill rearranged to meet their requirements.

Pennsylvania, Sunbury. I. Clyde Gass, 521 Packer St., City Clerk of Sunbury, is starting in the hosiery manufacturing business in a small way and is interested in information on equipment and supplies.

.....

Enlargements and Improvements.

*Alabama, Fort Payne. H. L. Huntington, of Chattanooga, Tenn., is preparing plans and specifications for the addition to the Florence Hosiery Mills, now owned by W. B. Davis and his son. The building will be 1-story high, mainly of brick, 150 feet long, by 64 feet wide. As noted in previous reports Mr. Davis was until a few weeks ago treasurer and manager of the Davis Hosiery Mills at Chattanooga, Tenn. He sold his holdings in that concern to the Miller interests and took over the Florence Hosiery Mills and it has been reported that he will develop the local plant and add facilities for dyeing and finishing the products.

Canada, Ontario, Woodstock.—Oxford Knitting Co. is in the market for a steam pressing and calender machine for finishing and drying balbriggan cloth from the knitting machine.

Georgia, Lafayette. It is reported the Fortune Hosiery Mill is to be enlarged. This concern was established about a year ago by P. D. Fortune, president of the Union Cotton Mills, and his son, A. R. Fortune, and 64 knitting machines are operated. P. D. Fortune has resigned as president of the Union Cotton Mills, and sold his interest in that concern preparatory to giving all his attention to the Fortune Hosiery Mills.

Indiana, Mishawaka. It is reported that plans are being made by the Mishawaka Woolen Mfg. Company for very extensive enlargements which will include the building of a large new manufacturing building and a new office building. Rubber footwear, knit and felt boots, and lumbermen's socks are manufactured.

Massachusetts, Lowell. It is reported that new machinery is being installed in the finishing department of the Lowell Hosiery Company, manufacturers of women's seamless and silk hosiery. The company states that there will be no increase in the production.

New Jersey, Boonton. Work has been started on a new building for the Boonton Hosiery Co., Inc., manufacturers of women's full fashioned silk hosiery on 24 full fashioned machines. George H. Fichter is president, treasurer and buyer.

New York, Fulton. It is expected construction work will soon be started on an addition to the plant of the W. H. Spanswick Mfg. Company. It was noted recently that the machinery that was used in the Parish, N. Y., branch has been moved to Fulton. It is planned to build a storehouse and a new boiler house. Bleaching for the concern is done outside and new bleaching facilities may also be added.

FACTS AND GOSSIP.

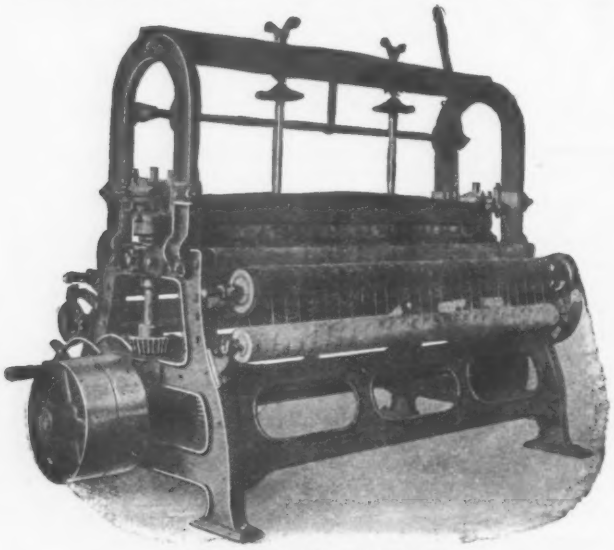
.....

Michigan, Adrian. Machinery in the local plant of the Adrian Knitting Co., which has been idle, is being started up and within a few days it is expected that the full force of employes will be at work. Men's, women's and children's underwear and union suits are manufactured.

*New York, Corning. Nothing definite has been done with respect to establishing a new textile plant here. Representatives of a manufacturer have been here and are said to be considering building, but there is nothing definite as yet.

New York, Glen's Falls. F. Binch & Co., manufacturers of warp laces and nets, who recently removed their plant here from Saratoga Springs, have a large number of orders on hand, including one contract for a large shipment each month for a year.

CHINCHILLA MACHINE



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Ask us to prove it

THE ROESSLER & HASSLACHER CHEMICAL CO.
NEW YORK

The Chemist and Industrial Development

(continued from page 75)

but the chemical manufacturers in Austria, Belgium, France, Great Britain, Italy, Russia and Switzerland have been engaged in the same effort, and all of them have failed; there is no real reason to look for glittering and immediate success now.

At the end of the year 1912 the world owed Germany $51,545,326 for dyes. Switzerland was second with a credit against the world of $3,794,898. Great Britain was the home of the coal-tar industry, but the Germans took it. At the end of 1912 Great Britain owed Germany, $6,275,775, for this class of goods.

For the fiscal year ending June 30, 1912, German dyestuff factories declared and paid dividends of 21.74 per cent. on their capital stock; for the fiscal year ending June 30, 1913, they declared and paid dividends of 24.96 per cent. on their capital stock; in both years the dyestuff makers' dividends were fully 10 points ahead of the nearest income-producing division of the entire German chemical industry. In other words, the German dye industry is getting stronger all the time, not only relatively, but actually as well, for her competitors are becoming more and more dependent upon her; this is shown by the fact that Great Britain and France were hit more quickly and more acutely by the failure to obtain dyestuffs and dyestuff materials from Germany on account of the war, than was this country, in spite of the fact that both countries have branch factories of German dyestuff works within their borders. It must also be remembered that in the early history of the coal-tar dye business, France was an important factor, not only in the invention of dyes, but in their manufacture, but it too has had to yield to Germany.

THE INDIFFERENCE OF THE DYE-USERS

Now the American chemical manufacturer is urged to transplant to this country as much of the German coal-tar dye industry as is needed to satisfy the wants of this country. To transplant the whole of it means that the American chemist must learn how to produce on a commercial scale, at low prices and in high quality, over 1,200 different chemical products, each distinct from the other, each calling for separate manufacture and close and careful supervision of each step. The textile makers could make the problem a great deal easier for the American chemical manufacturer by making up a statement of the chemical nature of all dyes that they use, the amount used annually of each, and the average prices at which they have been purchasing them. Should it then turn out that the American textile makers could be satisfied with, say 400 out of the 900 dyes, it might very well be that 200 of the 300 intermediate products would be sufficient, and that would reduce the difficulty of the dye manufacturers' problem by 50 per cent. This is not an unreasonable expectation since seven colors have been able to do substantially all the tinctorial work of the 86 different colors used in food coloring prior to their prohibition by our Federal and State Governments. The textile makers decline absolutely to co-operate even to this slight extent.

Surely compared with the demand on the part of the textile makers that the chemical manufacturers invest not less than $5,000,000 and spend a year or two, or even more, in making the 900 different dyes and the required intermediates, the request on the behalf of chemical makers that the dye users furnish some dependable statement as to the actual consumption, both as to kind and amount, and the prices thereof, is a very, very vanishing quantity. The textile makers and other dyestuff users could prepare such a list at a total cost to them of less than $1,000. If the users of dyestuffs are so reluctant about this small expenditure of money and trouble in order to simplify the dye maker's problem by over 50 per cent., representing millions of dollars of real money, the conclusion does not seem to be wholly unjustified that these users of dyestuffs have cried out long before they were even hurt, and that th extent to which they are hurt is not worth $1,000, for the purpose of ascertaining how conditions can be remedied. It is difficult, for me, at any rate, to believe that since the users of dyestuffs in this country will not go to that slight expense, they are very seriously hurt, if they are hurt at all.

THE PUBLIC AND THE DYE INDUSTRY

Now the public at large has a right to know what it would mean to them to have $10,000,000 worth of dyestuffs produced in this country; roughly it would cost over $5,000,000 of capital and would not, at the very outside, employ to exceed 7,000 people all told, in all divisions of manufacture, sale and distribution of the dyes and the necessary chemicals therefor, and would result in a diminution of our import business by only 0.4 per cent.

I say in all seriousness that this agitation on the part of our press, and this public clamoring that the chemical makers of this country should at once make coal-tar dyes in this country, is very much of a tempest in a tea-pot, and I believe that the presentation just given, is ample justification for anyone's taking the position of "Doubting Thomas." I, at any rate, have come to the conclusion that if coal-tar dyestuffs must be made in this country, the users of the coal-tar dyestuffs are the ones who should foot the bill for the venture; they should go out and get the money, and they should stand the losses that are bound to result, since they are in a position to absorb those losses without substantial harm to themselves. Failing that, the public at large must foot the bill.

The remedy that some of these newspapers and other equally ill-informed persons suggest is to alter the policy of our patent laws by introducing requirements for compulsory working. That is, by thus radically altering our policy, we are at once going to get a coal-tar dye industry.

THE BRITISH WORKING CLAUSE

France, in the early days of the coal-tar dye industry, was an important factor in the invention and in the manufacture of dyes; the same with Great Britain; France has always had a drastic working clause; in 1907, the British working clause was brought about at the insistent agitation of dyestuff makers of Great Britain, and they promised, in effect, to the British public that if

(Continued on page 173)

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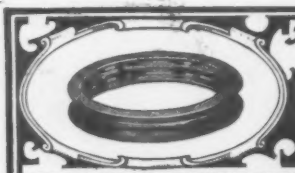

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FALL RIVER, MASS.

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TEXTILE FINISHING MACHINERY

ARTHUR BIRCH, Proprietor

Arlington Heights (near Boston), Mass.

(Continued from page 171)

that working clause were enacted into statute, an independent British coal-tar dye industry would spring up at once. After the law had been in operation six years and a half and Great Britain could no longer deal with Germany, what was the result? Was Great Britain able to supply its own needs of coal-tar dyes? Certainly not. Was France? Certainly not. Now since neither of these countries was able to supply its dyestuff needs, when it could no longer trade with Germany, was the working clause the cause of that condition? If not, what was? Certainly the working clause did not prevent that condition from arising. If the British working clause, the last, and presumably the best of the 56 measures now in force attempting compulsory working, absolutely and utterly failed to produce in six and a half years a coal-tar dye industry, when it had at that time five coal-tar dye factories of its own—each of them at one time or another making some of their own intermediate products and some of them at times even exporting to Germany—if those five British dye works plus the new British working clause could not produce the $6,000,000 worth of dyes a year that Great Britain imported in 1912, and make themselves independent of Germany, on what grounds and by what course of reasoning has anybody the right to assume that if we were to put the British working clause bodily on our statute-book, we would create a large coal-tar dye industry, at once, or within any reasonable time?

In a paper entitled "Compulsory Working of Patents" written by Oliver Imray and Hugh Fletcher Moulton, both of London, and read before the International Association for the Protection of Industrial Property at its Convention in London in June, 1912, they sum up the effect of the British working clause as follows: "The results attained are, therefore, infinitesimally small compared with the large number of existing patents (100,000) even after deducting from this number those patents which may be considered of minor importance, and this in itself is an absolute proof of what a small call there was for this very serious and drastic alteration of the law, an alteration practically admitted by all countries from many years actual experience to be a mistake."

At the meeting of the Imperial Industries Club of Great Britain, April 1, 1914, the compulsory working of patents was discussed. No one speaking in favor of the 1907 British Act named any specific cases of any new industries being brought to Great Britain thereby. Those speaking against the Act referred to case after case where foreigners revoked the British patents and then dumped foreign-made goods on the British market. Lord Moulton said of this British Act: "It is of no use arguing about legislation of that kind. It is self-condemned."

Those who have spoken favorably of this British Act with but one or two exceptions have colored their statements: for example one new plant was represented as employing 1,600 people—it employed 37; another represented at 600 employees, employed 60. There are no official figures as to the real effect of this Act; the only figures are those of real estate agents having land and factories for sale; under those circumstances their fall from truth is understandable, but it does not heighten their credibility.

While the debate was on as to this British working clause the rosiest predictions were made, and I remember distinctly that it was promised that $500,000,000 of new capital would be brought into Great Britain on account of this working clause, and that hundreds of thousands of British would receive fresh employment.

Shortly after the enactment of the British working clause there was a considerable scramble among non-British corporations for opportunities to work in England, and that was looked upon as

(Continued on page 175)

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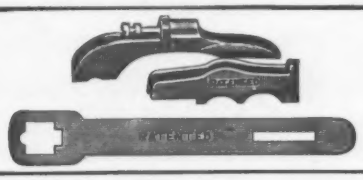

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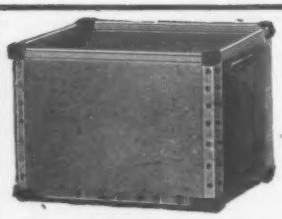

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THE OILSGO COMPANY, - - Great Barrington, Mass.

(continued from page 173)

a great confirmation of the wonderful efficiency of that particular Act.

After two years of full operation, and under date of March 23, 1911, the London Times says: "Some fifty firms have commenced or are about to commence work under the Act, and the new factories involved a total outlay of some $4,000,000. It is hoped that employment will in this connection be found for 7,000 additional men, and that the wages paid to them will total something like $4,000 per week. Among the new industries are metallic filament, electric lamps, cinemetograph films, aniline dyes, mercerized cotton, foods and medicines, oxygen, clay glaze. The foreign firms principally represented are German and American." That is, $4,000,000 came in instead of $500,000,000. For 50 firms that makes an average outlay of $80,000 per firm; this is probably four times the truth, at that. Under date of Sept. 26, 1914, the Textile Manufacturers Journal quotes as follows, on page 6, from the Textile Mercury of Manchester, England: "Openings for New Industries—A few years ago every one was full of hope of the foundation of new industries in our midst. The occasion was the passing of the Patents Act of 1907, which, for a while, appeared to threaten the validity of foreign-held British patents. Municipalities, dock, railway and estate companies saw what they took to be an opportunity, and they went about to meet it. They issued books and advertisements in furtherance of the claims of their situations in order to catch the eye of capitalists who might entertain the idea of opening English works. For reasons into which it is unnecessary to enter, the result from these efforts was somewhat disappointing. The act did not lead to the establishment of any large number of new factories on British ground, but the facts that the anticipations existed and efforts were made deserve to be remembered at the present." Whatever the cause, the fact is that England today cannot make and does not make her own supply of dyestuffs.

Furthermore, it must be remembered that on July 13, 1832, the President of the United States approved an Act compelling all foreigners to work their patents in the United States under penalty of automatic cancellation. That Act was repealed July 4, 1836; it died at the tender age of three years, eleven months and twenty-two days. If it was bad policy for us then, and experience proved it to be, why should it be good policy for us in 1915 to try the same thing over again? It has not worked in any of the 56 countries that have tried it. Why should it be successful after so many failures under present conditions, and why should it be successful when the old conditions, under which it invariably failed, return?

Another thing that must not be lost sight of is that when we put such an Act upon our statute books we expose ourselves to retaliatory measures, and retaliation may take place just as Germany and France retaliated upon Great Britain for the working clause of 1907.

From the London Times of March 23, 1911, just

(Continued on page 176)

DRONSFIELD'S
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Licker-in Grinding
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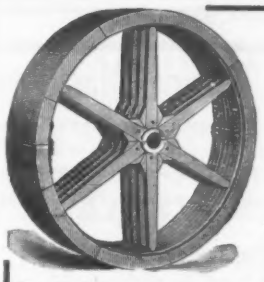
Automatically straightens bent teeth, re-points the teeth, and grinds the licker-in cylindrical and parallel. A trial will surprise you!
Our new Wire Mounting Apparatus is attachable.
Supplied by all the
Textile Machinery Importers, Boston, Mass.



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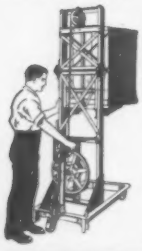

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Oak Tanned Belting
Worsted Aprons
R. H. HOOD COMPANY
1842 Germantown Ave., Philadelphia, Pa.

(Continued from page 175)

quoted, it appears that Germany was not the only country hit, but that we have suffered with it.

The transplantation of the coal-tar dye industry to the United States is not a question of patent protection; it is nothing but an economic question, a plain matter of dollars and cents; those products can be made in this country if persons will buy those products at a fair margin of profit over the cost of domestic production, and since we know in advance that the cost of production here will be above cost of production elsewhere, plus any prevailing import duty, why should we go to the costly venture of spending millions of dollars to prove the obvious?

As a matter of fact, the whole world's coal-tar dye consumption is about enough to make a decent sized business for one country. Ordinarily it is best to do the world's work where it can be done best and to transport the products from their place of manufacture to their place of consumption. If it be necessary, for other reasons, that these products should be made elsewhere under conditions economically less favorable, then those who want those products made at such economically unfavorable place should bear the burden, but that is precisely what the dye users do not want to do; they want someone else to foot the bill.

KEEPING TWO MILLION PEOPLE AT WORK

The textile makers say that if they do not get those dyes, 2,000,000 people in this country will be thrown out of work, and in order to prevent that, the chemical manufacturers of this country must go down into their pockets for millions of dollars. Now, who brought those 2,000,000 people into the textile business? Who has the moral responsibility of keeping those 2,000,000 people employed? Is it too much to ask the textile maker to give up, say 5 per cent. of his profits to keep his word and live up to his moral obligations, or should the chemists of this country furnish millions of dollars to enable the textile makers to keep their word with the making of which the chemical manufacturer is in no wise concerned? Is it patriotic to decline to give up 5 per cent. of your profit in order to keep 2,000,000 people at work, for which 2,000,000 people you are morally, directly, responsible? Is it unpatriotic to decline to furnish millions of dollars to aid in the keeping of a promise with which you had nothing whatever to do, and from whose keeping you have nothing whatever to gain?

From an economic, a moral, or a patriotic point of view, the responsibility for and the financial burden of making coal-tar dyes in this country rests squarely and solely upon the users of dyestuffs, and in no wise, whatever, rests upon the chemists or the makers of chemicals in this country.

Massachusetts, Salem. The Naumkeag Steam Cotton Co. has awarded the contract for humidification and compressed air cleaning in their new spinning mill to the G. M. Parks Co. for the "Turbo" system.

Massachusetts, North Billerica. The North Billerica Company, which took over the old Faulkner Woolen Mills, is working night and day shifts on flannels.

KNIT.

.....

Enlargements and Improvements.

*Pennsylvania, Parkers Landing. Preliminary construction work has been started on the knitting mill addition which it was recently noted would be built at the Parker Woolen Mills. The initial equipment will include 12 knitting machines for making men's woolen and merino seamless half hose and it is expected the new department will be in operation about May 1. This concern has heretofore manufactured woolen and merino yarns for the knitting trade on one set of cards. The capital stock is $10,000. W. S. Thompson is president; Arthur E. Conn, treasurer and buyer, and J. O. Conn, superintendent.

*Wisconsin, Kenosha. An addition comprising 75,000 square feet of floor space is to be built for the new men's hosiery department of the Cooper Underwear Company. They have not fully settled details of the new department and no report can be given of the hosiery equipment. Robert S. Cooper is president, superintendent and buyer; H. S. Cooper, secretary, and J. D. Cooper, treasurer.

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Mills Starting Up.

*Massachusetts, Hudson. Manufacturing has been started in the new Shetland Knitting Mills, Inc., 8 Houghton St. This company was recently organized with capital stock of $8,000, to manufacture infants' and children's worsted knit goods. Albert B. Freeman is president and Harry C. Beless, formerly salesman for the Saxony Knitting Mills, Needham Heights, is treasurer and buyer.

Ohio, Tippecanoe City. The Superior Underwear Company, of Piqua, Ohio, has opened its No. 2 Mill here after a long period of idleness. A number of improvements have been made about the plant.

Pennsylvania, Newmanstown. The Newmanstown Hosiery Mills have resumed manufacturing with a full force after a period of curtailment. Men's hosiery is manufactured.

Virginia, Williamsburg. The Williamsburg Knitting Mill, with yarn equipment, knitting and sewing machines, and bleaching and dyeing plant, has been purchased by J. Etgen, office manager of Tatum, Pinkham & Greey, N. Y. selling agents, and the plant will be started up at once on men's and women's fleeced lined underwear, men's ribbed two-piece and union suits and men's cotton sweaters. The equipment is 13 sets of cards, mule spindles, 80 body machines, 75 sewing machines, winders, nappers, etc. Yarns will be bought for immediate operations. John McGinnis, formerly superintendent of the plant, will remain in charge as superintendent and buyer; and Harold T. Etgen will be assistant superintendent. All the product will be sold through M. Zumkley, Knit Goods Dept. of Tatum, Pinkham & Greey, 40-42 Leonard St., N. Y. Recently Mr. McGinnis and Edmond Fain organized a company under the name of the Old Dominion Knitting Mill Co. to operate the mill and started a few machines. It is understood that Mr. Fain is no longer connected with the concern. The mill has been idle for the greater part of the time for several years.

THE

TRADE MARK FLATLOCK SEAM PATENTED

IS

NO THICKER THAN THE FABRIC ITSELF

You can make a perfect union of

ABUTTED CUT EDGES

and form a very strong, soft and smooth FLAT SEAM if you use the new

FLATLOCK MACHINE

Domestic and Foreign Patents on Both Machine and Product.

Goods made on these machines find a ready sale because of the FLATLOCK SEAM which is a result

NEVER BEFORE ACCOMPLISHED.

The new seam is

MADE IN ONE OPERATION AT HIGH SPEED.

"FLATLOCK" samples cheerfully supplied to *Manufacturers, Jobbers and Buyers*
Apply to Department 18

WILLCOX & GIBBS SEWING MACHINE CO.

Trade Mark

Reg. U. S. Pat. Off.

Chief Office

658 Broadway

Corner Bond Street

New York

For boiling out

COTTON YARNS

before mercerizing, better results can be secured by using

Wyandotte Textile Soda

than can possibly be obtained when any other alkali is used.

The Wyandotte Textile Soda cleans the yarn positively clean, so that it comes out soft, lofty and lustrous, not dead and harsh, as you have often seen it. Consequently such yarns, when mercerized, have a higher lustre and a more silky feel.

The use of Wyandotte Textile Soda for this purpose is proving of immense practical value wherever tried, and in no place are the results more noticeable than in mercerized hosiery yarns. Wyandotte Textile Soda is also proving of unusual assistance in the bleaching process.

And again for Kier boiling.

Wyandotte Concentrated Ash

is accomplishing results not obtained from other materials.

Order from your supply house, or write us for further information

This Trade-Mark Card

In Every Package

The J. B. Ford Co., Sole Mnfrs., Wyandotte, Mich., U. S. A.

This soda has been awarded the highest prize wherever exhibited

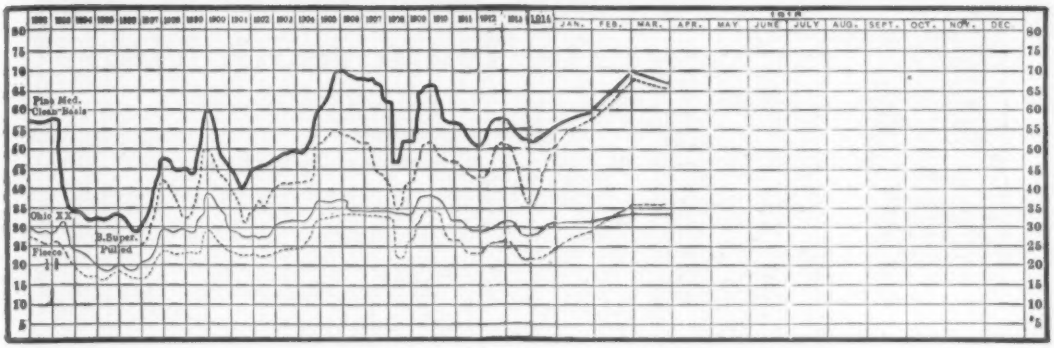


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

New business in the American wool markets has been at a practical standstill, owing to the extraordinary conditions prevailing. While there has been a fair amount of foreign wool received, it was nearly all wool that had been sold to arrive. The small amount that had not been taken up by manufacturers was quickly sold on arrival. The arrangements made for importing wool from British ports to the United States has not yet resulted in any increase in shipments. There has been an embarrassing delay in securing licenses for export in London and many well posted men in the trade believe that the value of the shipping arrangement has been greatly over-estimated. All that it means is that the wool England can spare may be exported to the United States after the license has been obtained. The underlying difficulty, however, is that England is likely to need most of the available wool. Already there is talk of substituting merino wools for the coarser grades in the manufacture of army goods, owing to the shortage of the last named qualities.

The domestic market is in a very unsatisfactory state. Buyers show no inclination to place orders and even the few mills that for years have run steadily and without a break in production are now operating but part of their machinery.

WOOLEN.

New Mills.

*Canada, Ontario, Kincardine. The tax payers have voted to appropriate a certain amount of money to William Mitchell in return for the establishment of a small woolen and knitting plant here. Reports of the project have been given previously.

Pennsylvania, Philadelphia. The Frankford Worsted Co. is being started up by D. Satinsky, 2843 Frankford Ave., the plant being located in the rear of 4155 Frankford Ave., Frankford. Four looms have been installed and others will follow at a later date. Mr. Satinsky is said to be doing a considerable business at the present time, having dress goods and men's wear made up by commission weavers.

*West Virginia, Philippi. Twelve thousand dollars have been subscribed for the new woolen mill company and a charter will be secured shortly with authorized capital stock of $25,000. The incorporators will be J. A. White, A. G. Jenkins, Delbert Zinn, W. L. Fordyce and others. A free site has been offered.

TETRAZO COLORS
FOR COTTON

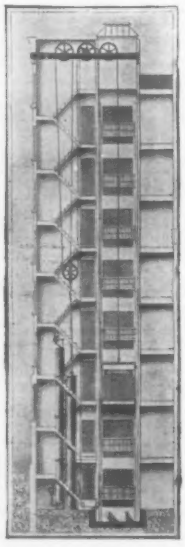
We offer these products in all shades for the dyeing of cotton in any form. Among them will be found colors specially adapted to meet the various requirements of fastness to light, washing, cross dyeing and fulling. Shade cards and samples, with full information, cheerfully furnished on application.

AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting

Nearly 2000 in Daily Use

Double Geared



Steam Hydraulic Elevator in a Great Soap Factory in Jersey City

The Hundredth Man

Of the young engineers who are graduated each year just one in a hundred will take a High Place in the profession.

Of one hundred men working for you just one has the stuff in him for a "bang up" foreman.

In old Bible times Gideon started out to do a job with 32,000 men. He finished the job with just 300 men he could depend upon.

One in a hundred.

Out of every hundred mill owners who will have their attention attracted by this adverti-ing just one will be keen enough to want to know all about the Ridgway Elevator

Which is being so generally adopted by the best concerns all over the land

And for which such remarkable claims are made by the builder

And **ONE IN THE HUNDRED**

Will be the fellow who is on the way to the High Place in the Business.

Think of any man calling himself an Engineer or a "General Manager" not to intimately know an elevator which claims

1. **To Go at Virtually No Cost for Power.**
2. **To Be Absolutely Fool Proof.**
3. **To Have No Repairs.**
4. **To Always Go and at Any Desired Speed.**
5. **To Go When the Engine is shut Down.**

NO PAY UNTIL IT MAKES GOOD.

And which claims are certified to by nearly 2000 concerns like these

R. J. Reynolds Tobacco Co.	Proctor & Gamble Co.	United States Steel Co.
Packard Motor Car Co.	DuPont Powder Co.	Revere Rubber Co.
Steinway Piano Co.	John Morrell & Co.	Chinese Government
Cluett, Peabody & Co.	Onyx Hosiery Folks	General Electric Co.
John Wanamaker	United Gas Improvement Co.	Lowell Machine Co.
National Cash Register Co.	United States Government	Remington Typewriter Co.
International Harvester Co.	Sears, Roebuck & Co.	Consolidated Gas Co.

Yes, Mr. Owner, there is a Reason why one Factory Owner to the Hundred will

"HOOK 'ER TO THE BILER"

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

Elevator Makers to Folks Who Know

BROWN BROTHERS & CO.

FOURTH AND CHESTNUT STREETS

PHILADELPHIA

NEW YORK BOSTON

Commercial Letters of Credit

AS we have been designated by the British Government one of the Custodian Bankers for shipments of wool from British Possessions, our Letters of Credit are peculiarly suitable for financing purchases of Wool, Tops and Noils, in Great Britain, Australia, New Zealand and South Africa.

BROWN, SHIPLEY & CO.

LONDON

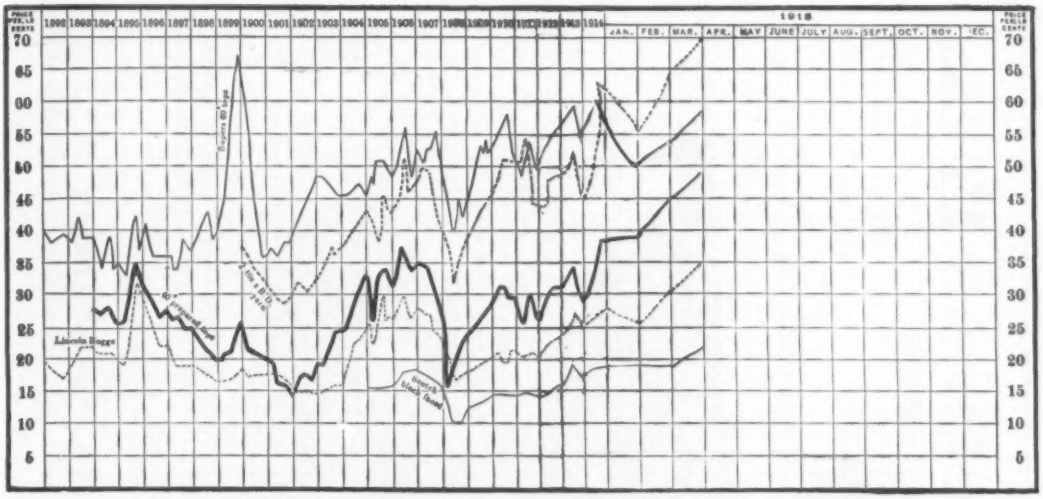


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

Bradford, Eng., March 25, 1915.

Holders of wool and tops are not in the least anxious to sell and do not appear to have any large quantities free for disposal. Wool is wanted more quickly than it arrives and the combers cannot keep pace with the demand for tops. Prices for combing were advanced 1/2 cent per lb. for merino and 1/4 cent for crossbred at the beginning of the month and the increase has gone into effect without the least disturbance. Combers and spinners are having perhaps the best time of their lives, but the worsted cloth manufacturer is in a different position. Men's fabrics are costing 12 cents more than a month or two ago, although by giving away the advantage of their yarn contracts, goods are offered at only 6 cents up by makers who will have to enforce another advance when the contracts are finished. The redeeming feature from the cloth manufacturer's point of view is that stocks of worsted cloth made out of much cheaper yarn than can now be bought, are appreciating.

The great and continued rise is very much to the distaste of manufacturers, few of whom, however, look for an early fall. Merinos are as dear now as when there was a famine of this class of wool, despite the reduction in Continental takings. It is freely predicted in some quarters that 40s tops will yet reach 60 cents. Nothing seems impossible for the time being when all ordinary standards of value and judgment are in suspense. What is accepted as quite certain is that at a date unknown these fancy values will come down with a run.

The high markets for colonial wool are of course noticed by British farmers and it seems probable that the English clip will be sold at high prices. Scotch blackfaced, the last class of wool to participate in the general rise, is 3 cents dearer than a month ago. Mohair is rising. The trouble in Turkey and the requisitioning by the German Government of the stock in Turkey have introduced new speculation elements in the mohair trade.

WOOLEN MILL NEWS

Enlargements and Improvements.

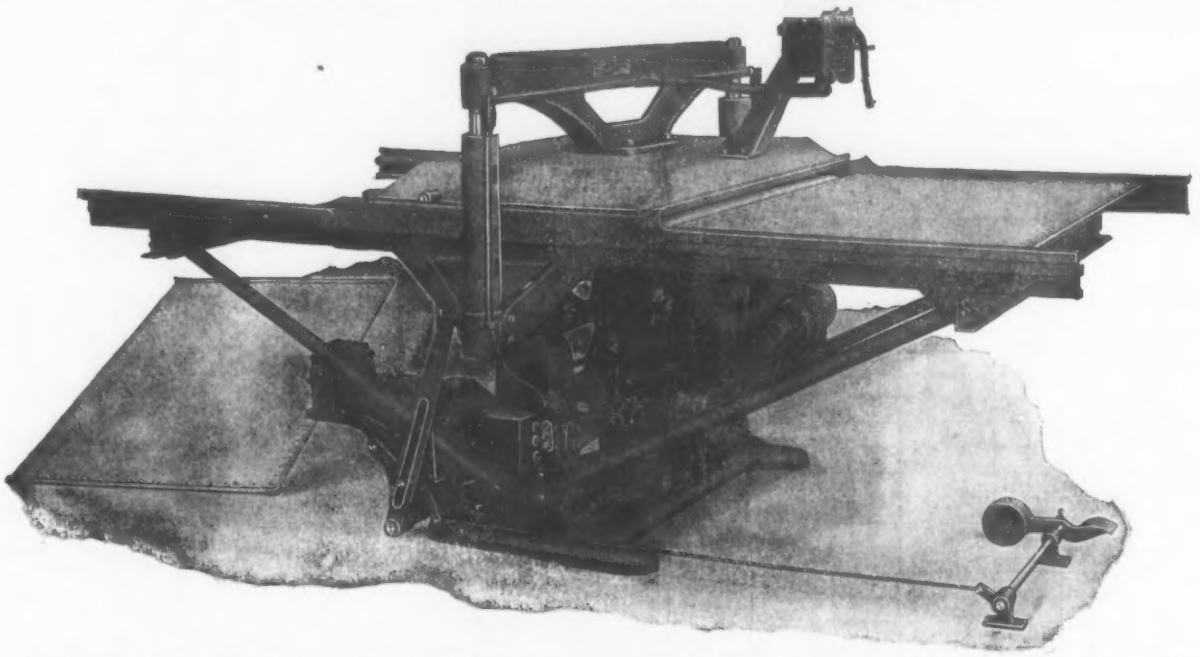
Michigan, Eaton Rapids. Two additions are to be built at the Eaton Rapids Woolen Mills, of Horner Bros. One addition will be built on the main mill and will measure 70 by 150 feet, 2 stories high. This will be used for manufacturing purposes. The other addition will be an office building, 50 by 125 feet, 3 stories high. Woolen and merino knitting yarns are manufactured on 12 sets of cards. The firm does the buying.

*Minnesota, Litchfield. The Litchfield Woolen Mills will rebuild the burned plant, but no date for beginning the operation has been set.

*Ohio, Cleveland. It is announced that one of the two additions for which plans have been prepared by the Cleveland Worsted Mills Company, will be 1 story high, 175 by 75 feet, constructed especially for dyeing purposes with many novel features. The other building will be 2 stories high, 164 by 119 feet, and will be used for storage. George S. Rider & Co., Century Bldg., Cleveland, are the architects. The Cleveland Worsted Mills Company are also making enlargements and improvements at their plants in Providence, R. I., and Falconer and Jamestown, N. Y.

American Automatic Underwear Press

THE MACHINE WITH THE HAND IRON FINISH



The American is the most rapid Knit Underwear Press yet produced. Its operation is automatic, requiring simply the feeding of the frames into the machine at one end and their removal at the other. A pressure of the foot pedal starts the machine, moves the frames forward under the steam chest, and applies the pressure.

See our Exhibit at Philadelphia, May 4th, 5th and 6th. Information gladly furnished upon request.

The American Laundry Machinery Company

132 W. 27th Street, NEW YORK **208 W. Monroe Street, CHICAGO** **Norwood Station, CINCINNATI**

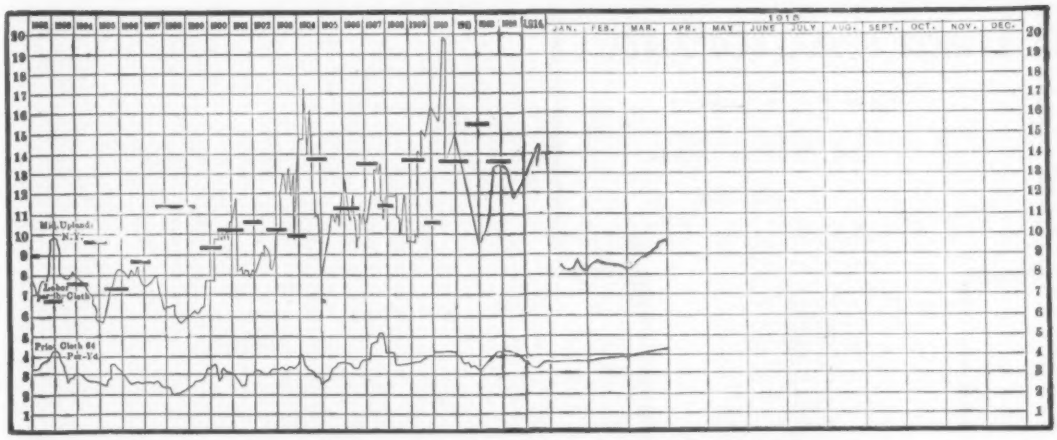


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The strong export demand for cotton, which has brought the aggregate shipments far beyond expectations, is the cause for the advance in prices. With the foreign cotton trade crippled in all foreign countries by the war, the heavy exports, amounting to 6,500,000 bales since the beginning of the season, have been rather mystifying to the trade. Some ingenious observers have concluded that the cotton is being used for the manufacture of gun cotton and have argued that about 300 pounds, or over half a bale of cotton, is used for the explosive consumed by one discharge of a heavy gun, and that at this rate the consumption of cotton for explosives is going on at the rate of 600,000 bales a year. The final ginning report on March 20 showed 15,873,000 bales ginned, as compared with 13,982,811 bales last year and 15,553,000 in the year 1911-12, which has up to this time been the banner year. These statistical conditions and the advancing prices show that the panic in the cotton market at the beginning of the war was in a great measure groundless.

The movement into sight from August 1 to March 26 is estimated by the "Chronicle" as follows:

Year	Bales
1914-15 March 26	12,654,016
1913-14 March 26	13,187,521

The world's visible supply on March 26 is estimated by the same authority at 7,547,765 bales, as compared with 5,861,471 bales at corresponding date in 1914, 5,325,712 bales in 1913, and 5,610,859 bales in 1912.

COTTON.

New Mills.

*Georgia, La Grange. Construction contract for the new Hillside Cotton Mills has been awarded to T. C. Thompson & Bros., Birmingham and Charlotte, and the work is to be completed by October 15. Equipment is to be installed and manufacturing started by January 1. In addition to the main mill, which will be 3 stories high, T. C. Thompson & Bros. will build 19 warehouses, an engine room, boiler room and 122 cottages for operatives. Park A. Dallis Company, Atlanta, are the architects engineers.

Enlargements and Improvements.

Connecticut, East Killingly. Some improvements are being made about the plant of the International Cotton Mfg. Company, manufacturers of absorbent cotton.

Georgia, Augusta. New pickers and cards will be installed in the plant of the Sibley Mfg. Company. Some of this machinery will take the place of old equipment which will be thrown out. The concern is producing a line of fabrics for summer uniforms and several Southern cities are understood to be considering them for their city employes.

Georgia, Chickamauga. The Crystal Springs Bleaching Company will install new equipment in the spinning department. The new machinery has been ordered.

Georgia, Forsyth. Enlargements which will double the spinning capacity are to be made by the Ensign Cotton Mills and work has been started on the foundation for an addition which will be equipped with approximately 5,600 ring spindles, 1,400 twister spindles, and electric power equipment. A number of new houses for employes will be constructed and a new church and school will be built for the mill people. 6s to 14s yarns are manufactured on present equipment of 6,000 spinning spindles and 1,120 twister spindles. O. P. Ensign is the buyer.

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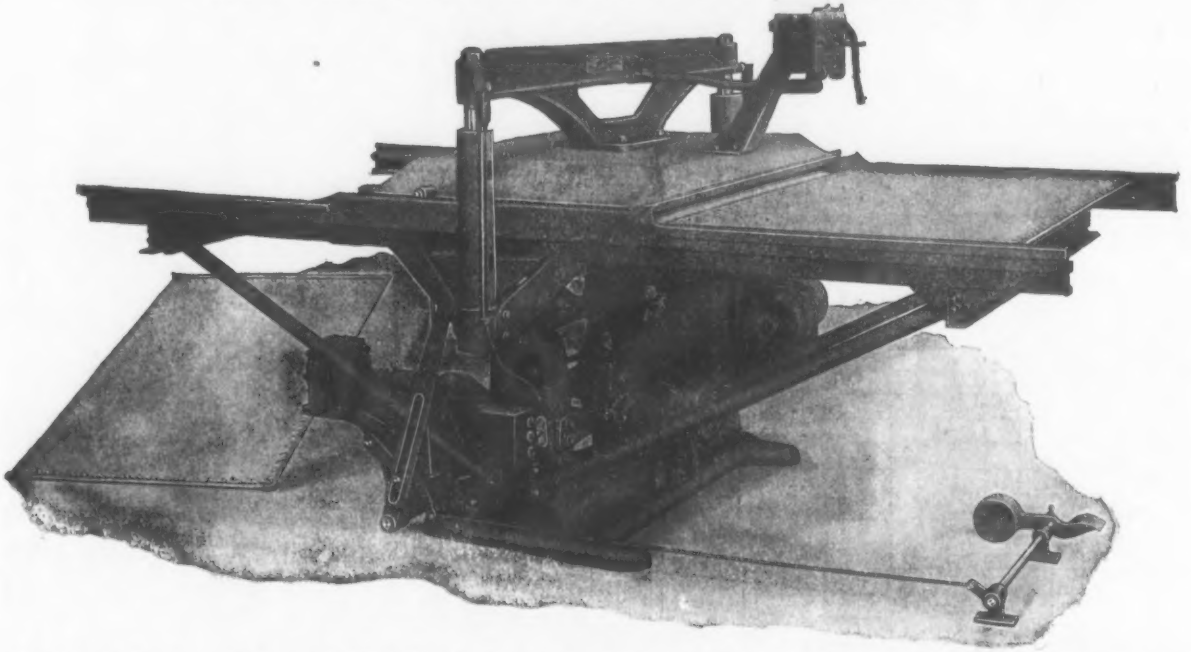

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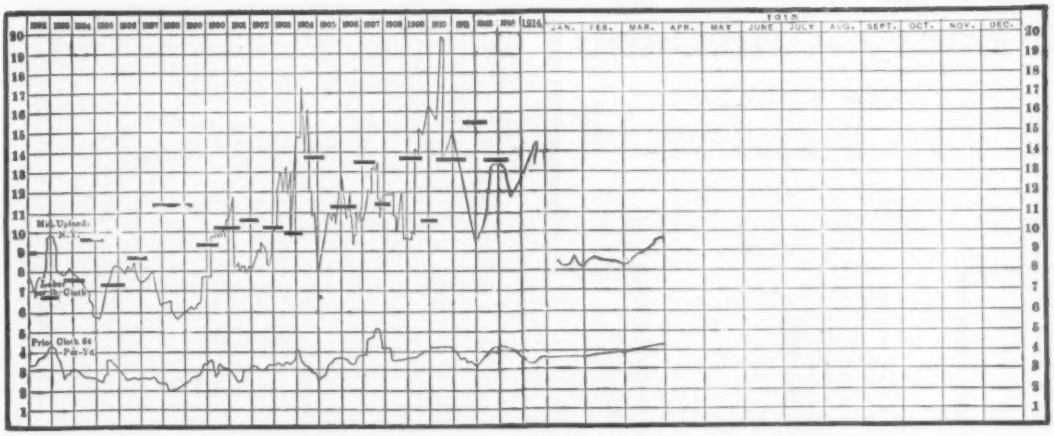

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Baer's Automatic
Yarn and Cloth
Tester
MOTOR DRIVEN

Sold Exclusively Through
ALFRED SUTER
Textile Engineer
200 Fifth Ave., New York

Vulcan Fibre Roving Can.

BODY—Vulcanized Fibre. SIDE SEAM—Riveted with patented Clinched Rivets. RINGS—Tinned Steel, Brazed Joints, Curled Edges. BOTTOM—IXXX. Tin Star Corrugation; Fastened without the use of nails or screws, will not crack, warp or shrink and cannot come out. FINISH—Coated inside and out with moisture proof coating, handsome and smooth. WEIGHT—About one half pound per inch diameter. SIZE—All cans to any exact size, perfectly round any true. DURABILITY—Superior to any other can.

Also Manufacturers of
HILL'S IXXX TIN AND GALVANIZED IRON DYE HOUSE CAN.

James Hill Manufacturing Co., Providence, R. I.

Enlargements and Improvements.

*Massachusetts, Holyoke. The Lyman Mills are preparing to tear down the remainder of the old cloth room building in the spring to make room for the new 9-story warehouse for which plans were announced last June. This improvement will cost in the neighborhood of $50,000. Last spring work was started on a new cloth department, 3 stories high, 135 by 60 feet.

Massachusetts, Lawrence. Eighteen thousand new spindles have been ordered by the Everett Mills. About two-thirds of this number will replace old frames which have been in service for a great many years and about 5,000 spindles will be additional, giving an increase over the old capacity. No further preparatory machinery and no looms will be added at this time. Current reports that 35,000 spindles and preparatory machinery would be installed are in error.

Massachusetts, New Bedford. The Holmes Mfg. Company has ordered new twisting frames.

Massachusetts, Newburyport. Two thousand twister spindles are being installed in the mill of the American Textilose Company for making yarns to be woven into tire fabrics. No spinning spindles are being added. The American Textilose Company operates both the cotton yarn department and the textilose yarn and weaving departments as formerly. A few more looms also are being added to the textilose weaving department. The tire fabric varns manufactured are shipped to the Passaic Cotton Mills, Passaic, N. J., to be woven. The American Textilose Company has no connection with the Bay State Cotton Corp., although Manning Emery, Jr., is agent of the Newburyport mill of the Bay State Cotton Corp., and general manager of the American Textilose Company. Mr. Emery is also president of the Passaic Cotton Mills.

New Hampshire, Manchester. An extension is being built to No. 3 cotton shed of the Amoskeag Mfg. Company, consisting of four sections, 64 feet in length, by 96 feet in depth. During the recent floods there were nine inches of water on the lower floor of the Jefferson Mill department.

New Hampshire, Nashua. Work on the new mill of the Nashua Mfg. Company is progressing rapidly and the addition will be completed in April. This enlargement will increase the spinning and weaving departments.

*New Hampshire, Peterboro. Nelson D. White, of Winchendon Springs, Mass., is superintendent and buyer of the mill at West Concord, formerly operated by the Union Mfg. Company. The equipment will comprise 12,000 ring spindles and 350 looms, and denims will be manufactured. The mill will be operated by water power. It is expected that manufacturing will be started about July 1 with 300 hands. Other plants are operated by the same interests at Winchendon and White Valley, Mass., and East Jaffrey, N. H.

New York, Sherburne. The capacity of the No. 5 Mill of the Utica Knitting Company, which is a cotton yarn plant, has been increased by the addition of 1,500 spindles. This mill is running night and day.

Cotton Mill Machinery
Of Uniform High Quality

If you should get from a single concern complete Cotton Mill Machinery, taken altogether it would be a fair average—but only a fair average. No one firm could be expected to reach highest excellence in a number of different lines.

With us, each piece of machinery from the Picker to the Loom has been developed to its maximum efficiency by the specializing of a separate organization. Each is the leader in its line, and the complete machinery is as efficient as any one of its units. The result is uniform high quality, which means real service and economy.

Drop us a line and our representative will lay before you facts which you will not wish to disregard.

Pickers and Revolving Flat Cards
POTTER & JOHNSTON MACHINE COMPANY
Pawtucket, R. I.

Roving and Drawing Frames
WOONSOCKET MACHINE AND PRESS COMPANY
Woonsocket, R. I.

Ring Spinning and Twisting Frames
FALES & JENKS MACHINE COMPANY
Pawtucket, R. I.

Spoolers, Reels and Spindles
EASTON & BURNHAM MACHINE COMPANY
Pawtucket, R. I.

Northern Representative
L. W. CAMPBELL
136 Federal Street, Boston, Mass.

Southern Representative
J. H. MAYES
Independence Bldg., Charlotte, N. C.

MERCERIZED YARNS

Dyers, Bleachers, Gassers.

Dyers of Colors Fast to

SUN AND BLEACHING

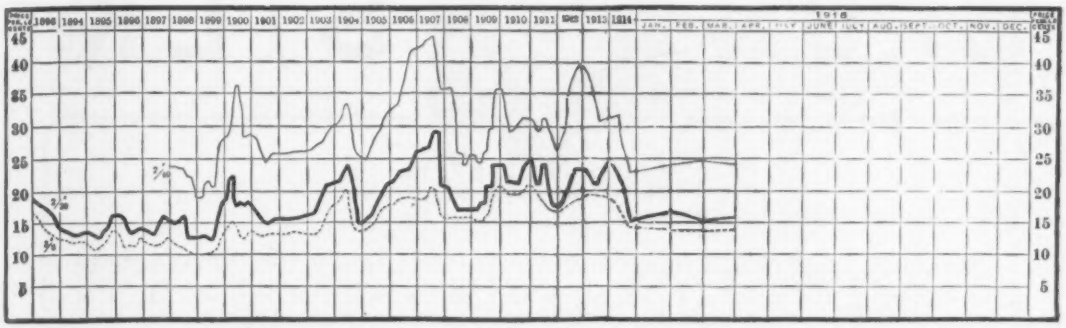
Aberfoyle Manufacturing Company

CHESTER, PA.

402 Morris Building
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn market, after a bad beginning, ended in a considerable stronger position. The raw cotton market has advanced to such an extent that it is now making itself felt. There is a considerable improvement in inquiries for yarns and apparently manufacturers have come to the conclusion that the price of cotton yarn has reached the bottom and they are safe in covering their wants for the next two or three months at today's figures. The only cloud that overshadows conditions, and it is a serious one, is the scarcity of dyestuffs. This problem has yet to be solved, to secure. The shortage has now reached the point where it is affecting the cotton yarn market. It is said among the trade that there is a good Blacks especially are extremely scarce and hard stock of yarns held by the merchants. There is, however, some doubt about this, as some of the dealers claim that the amount of yarn on hand is but little above normal, while others state that there is 50 per cent. more than the average stock on hand.

In looking the situation over, however, some authorities on the subject say that the stocks of yarns held today are about one-third larger than have been usually carried in normal times. It is doubtful if this would have any tendency to bear the market if the demand continues active. Yarn merchants have gone through a very unprofitable year and it is doubtful if they would allow any opportunity to pass to recuperate some of their losses. Strange as it may seem the scarcity of dyestuffs has not in any way influenced buyers to place orders for manufactured goods to any extent. Some manufacturers state they are shutting their eyes to a very serious difficulty and the time is coming when they will find themselves in a bad position.

Eastern Cops.

6s	14¾
8s	15¼
10s	15¾
14s	15¾
16s	16¾
18s	17¼
20s	17¾
22s	18¼
24s	18¾
26s	19¼
30s	20¼
34s	22
36s	23
40s	24

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½ c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	16½
14s	17
18s	18
20s	19
24s	20
26s	21
30s	22
36s	24½
40s	26½
45s	30½
50s	32½
55s	38½
60s	41½

Eastern Two-Ply Warps, Carded Peeler

2/30s	22½
2/36s	25
2/40s	27
2/45s	31½
2/50s	33½
2/60s	42½

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Nonotuck Spun Silk is made in the same mill, under the same careful supervision as the famous Corticelli Spool Silk, which has won 40 Highest Awards at Expositions at home and abroad. Send for samples.

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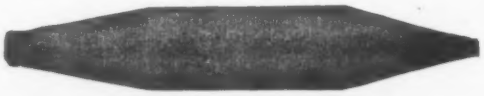

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Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

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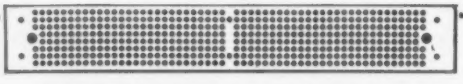

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THE PHILADELPHIA MARKET

7s and coarser	15
8s and 9s	15
10s	15
12s	15-15½
14s	15½-16
16s	16½
18s	17
20s	17½
22s	18
24s	18½
26s	19
30s	20
40s	25
50s	32

Southern high grade mule yarns:—

Cones

10s	16½
12s	17
14s	17½
16s	18
18s	18½
20s and 22s	19-19½
24s	20

Southern frame yarn, lower grades:—

6s and 8s	14½
10s	14¾

Eastern cones (high grade quality):—

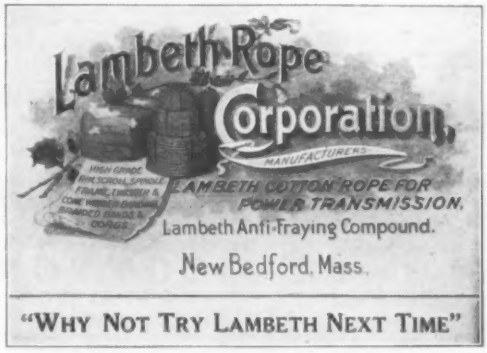
10s	17
12s	17½
14s	18
16s	18½
18s	19¼
20s and 22s	19¾-20¼

Skein yarn (mostly Southern):—

4s and 8s soft	14
10s and 12s	14½-15
14s and 20s	15-16½
22s	17
10/2	14½
16/2	15½
20/2	16½
30/2	19
40/2	24
8/2	14½
7/6	14¼

Southern warps:—

10/1	14½
14/1	15
16/1	15½
20/1	16
22/1	16½
26/1	18
30/1	19
8/2	14½
12/2	15
14/2	15½
16/2	16
20/2	17
26/2	18
30/2	19½
40/2	25
50/2	32



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Patented Hosiery Winders, Cop Winders and Spoolers

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WRITE — FOR SAMPLES AND PRICES ON SEWING AND SPLICING THREADS IN ALL COLORS TO → TO FLORENCE THREAD CO. FLORENCE, N.J.
HOSIERY AND UNDERWEAR MAKERS WHO WANT TO MATCH COLORS — WRITE

The Ramie Agency
Manufacturers' Agents
New York
Ramie Yarns and Threads
HAVE REMOVED
TO NEW AND LARGER QUARTERS AT
432 FOURTH AVE. Corner of 29th St.

LINEN YARN MARKET

There is no change in the linen yarn market since our last report. There is no weakening in quotations, but it will be extremely difficult to raise the prices higher. These excessive prices will probably be maintained for some time until the situation in connection with raw material is altered. The outlook for this is anything but satisfactory. Considerable quantities of flax have arrived from various Continental ports and this has tended to keep the price from rising higher than it would have done had these ports been closed entirely. The Irish spinners are evidently securing the help of the government with a view to placing an embargo on the exportation of raw flax and dressed line from that country. American mills which have been in the habit of securing flax and dressed line from the British market may find themselves in a very serious position should the continental supply give out. It certainly will tend to increase the price of flax yarns for the requirements of the British army and navy are of such a character that prices of these yarns are held at a high level. The finer yarns have been increased in value owing to the excessive demand for aeroplane cloths. These yarns are similar to those used in the hosiery business in this country. There has been considerable difficulty in securing sufficient yarn to meet the demand for the hosiery business, as no yarn except a high grade can be used in either of these industries. As a result prices have advanced considerably.

("A" Quality)

35s Lea on cones	95
50s Lea on cones	1.00
60s Lea on cones	1.05
80s Lea on cones	1.10
90s Lea on cones	1.15
100s Lea on cones	1.25
110s Lea on cones	1.40
120s Lea on cones	1.75

MISCELLANEOUS.

Pennsylvania, Philadelphia. The Textile Dyeing & Finishing Co., Inc., with a capital of $30,000; James McLaughlin, president; C. J. Herrmann, secretary and treasurer, have leased the building at 2024 E. Willard St., where they have installed machinery for the dyeing of woolen, worsted, union and cotton piece goods and finishing of men's wear, dress goods, etc., making a specialty of redyeing, fast colors and bleaching. The plant at the present time is work night and day.

Pennsylvania, Philadelphia. Permits have been granted for the erection of an addition to the plant of the Pennsylvania Silk Dyeing Co., at Adams Ave. and Leiper Sts., consisting of a one-story concrete building, 10 by 14 feet.

Steel Heddle Mfg. Co.

WORLD'S LEADING MANUFACTURERS OF

Flat Steel Heddles and Frames

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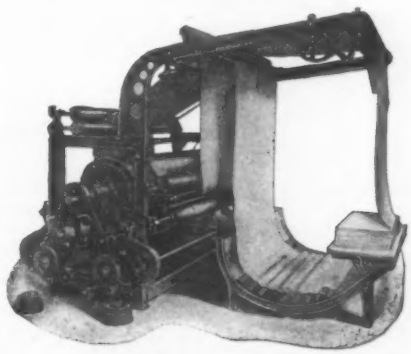

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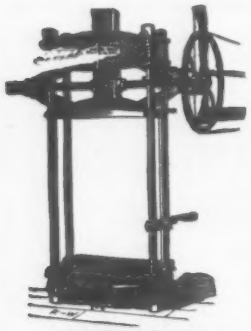

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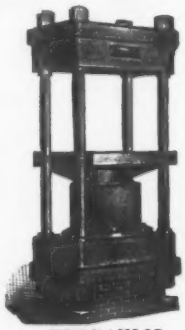

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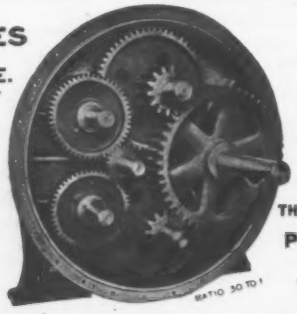

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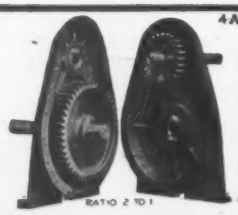

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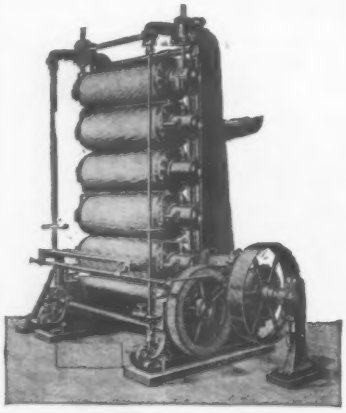

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Bleaching, Dyeing, Drying, Mercerizing
and Finishing Machinery

MISCELLANEOUS.

.....

*Massachusetts, Charlton City. Mr. Broderick, recently reported as purchasing the old wadding mill here, expects to begin manufacturing about April 1 with 3 garnetts, 2 lumpers, 4 pickers, 1 duster, and 2 baling presses on cotton and jute battin~ and felts for the mattress, comforter and upholstery trade. The property was purchased from the National Wadding Company and consists of two houses, a factory building, 50 by 200 feet, storehouse, 75 by 75 feet, water privilege, steam power plant, etc. A number of repairs are necessary about the plant. A. Broderick is the proprietor, and L. Broderick is superintendent and buyer.

Massachusetts, Lowell. New machinery is be ing installed by the Lowell Bleachery. Business is reported to be excellent.

Massachusetts, Saugus. A concern known as the American Tire Company has purchased the Sagamore Rubber Company plant and will manufacture felt tires and other felt goods. The chief product will be "Avon Airless Tires," made out of felt. J. W. Clapp is president and general manager, and F. H. Clapp is secretary and treasurer.

New Jersey, Passaic. The Passaic Hemstitch Embroidery Company has been organized with capital stock of $100,000 to succeed the Passaic Embroidery Company with a plant at the corner of Passaic and Canal Sts. Considerable new machinery is being installed.

*New Jersey, Paterson. Louis A. Rey and his associates have filed articles of incorporation for the Victory Finishing Company, organized to take over and operate the dyeing and finishing department of Dexter, Lambert & Company. The capital stock is $25,000. The men interested are Louis A. Rey, 731 E. 23rd St.; Edward J. Rey, 731 E. 23rd St., and Charles C. Scott, 126 Market St. It is expected that operations will be started within two weeks, employing 75 to 100 hands. Louis A. Rey was formerly connected with a local dyeing concern.

New York, Tottenville. J. W. O'Meara will reestablish his silk plant, which was recently destroyed by fire, as soon as his affairs are adjusted. Undertakers' trimmings were manufactured on 6 loom and 2 braiders, and the loss was placed at about $9,000.

North Carolina, Charlotte. Contract for the rebuilding of the Charlotte Cotton Fibre Company's plant has been awarded to R. L. Goode, of Charlotte. The contract is for rebuilding the main structure and two warehouses, and amounts to $15,000. The batting mill, which adjoins the main building, was not destroyed in the recent fire, and is being started up.

Pennsylvania, Philadelphia. The Germania Bleach Works has been started up at Kensington and Allegheny Avenues, where a plant has been equipped for handling about 6,000 pounds of woolen and worsted yarns, cotton and mercerized yarns and cotton and silk hosiery, knit goods, underwear and fabrics under the peroxide process. The plant at this time is very busy.

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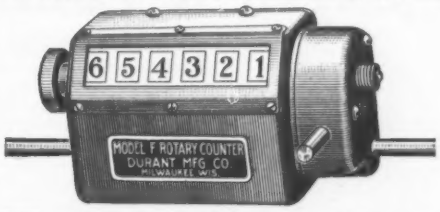

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wherever a count or measurement in any unit is of value in mill management. Built to meet the needs of exacting conditions, you can depend upon their count, apply them easily to all classes of machines and profit largely from the savings effected over other counting methods.

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Charles Hammer - - - - 620 West Broadway, New York

Style No. 5005

Cotton Cloth Scale

No tables or calculating required. Results read off direct from beams. Torsion Construction eliminates friction and wear. Having no knife edges to become clogged with dust and fibres, they are especially adapted for use in textile mills.

Dye Scales Special Scales for Special Purposes

Torsion Balances used by National, State and Municipal Governments, United States Appraisers Stores, Manufacturers and the trade. *Write for Textile Pamphlet.*

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Comparative Yarn Tables, showing the equivalent sizes of different systems of Numbering Yarn and Different Standards.

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Breaking Strength Table of American Cotton Warp Yarns.

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WILLOWS Continuous Cotton Stock Opening, Cleaning, Metal Extracting and Condensing Outfit; also Square Box and Cone Willows or Dusters

GARNETT MACHINES—For carding cotton and woolen waste clippings, etc.; also for manufacturing cotton, wool and jute batting or felts.

FEEDS—Self feeds for cotton, wool, worsted or jute; also Camel Backs, Blamires and Apperlys.

METALLIC BREASTS—Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

RECLAIMING MACHINE—For Opening and Cleaning various kinds of Cotton Mill Waste.

CARDS Woolen, Worsted, Cotton Waste, Shoddy, Hair, Asbestos and Jute Cards; also Special Cards for the manufacture of Wool Hats.

MULES—Heavy and Durable for Wool and Waste Yarn.

TWISTERS—Plain or Fancy Twisters for Flake, Loop or Bourette Yarn.

BOBBIN WINDERS—Automatic Jack Bobbin Builder and Adjustable Creel for different length spools.

WARPING MACHINERY—Copper Cylinder Warp Dressers with single and double size pans; beamers; Section and Pineless Warp Mills. Creels and Dresser Spoolers for Wool or Worsted.

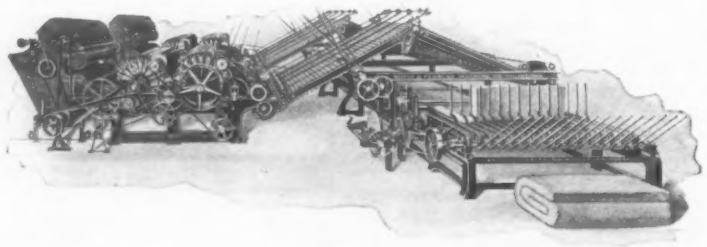
GRINDERS, Etc. Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers; also Turning Rests, Fillet Winders, Card Clothing Stretchers and Cleaning Frames.

Special Circulars furnished for each Machine

Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc from Cotton, Cotton Waste, Linters, Jute, Wool and Wool Waste

A complete line of Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging
Complete Equipment for Manufacturing Mop Yarn and Rope from Cotton Waste

Estimates and complete plans furnished



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Two Garnett Machines with Camel back Lappers and our Automatic Cut-off and Folder
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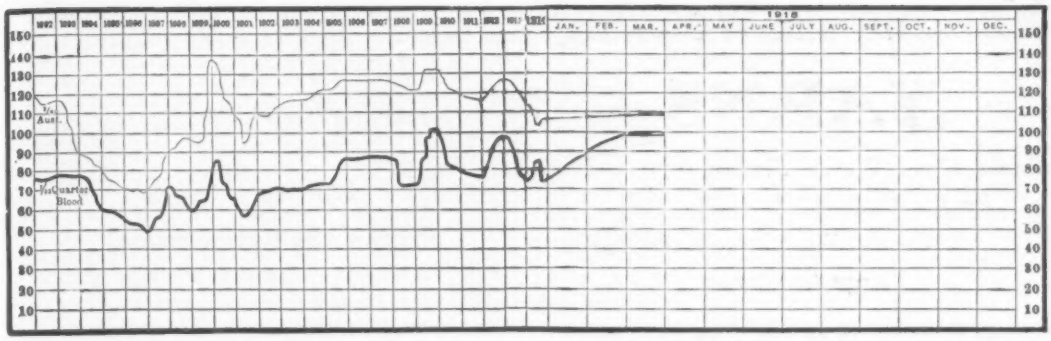
We build a complete line of machinery for all sorts of Felts or Batts with either Garnetts or Cards

Machinery for making Absorbent Cotton



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

THE WOOLEN AND WORSTED YARN MARKETS

Spinners report an improvement in the demand for yarns, with the exception of the sweater lines, where trade has fallen off considerably within the past few weeks and is practically dead. A few manufacturers have produced some novelties which are taking well with the market. Spinners are receiving some contracts from the weavers for immediate shipments, but have no business ahead and are looking for orders. In many instances they are taking business at cost to keep their plants running. A few wool dealers are now more ready to accept offers on odd lots of wool and in many instances are selling them to clean up stocks. This will have a tendency to relieve the situation somewhat, especially as wool has been declared contraband, with the result that more wool can be found in this country for the spinners' use. It is also said that some yarns have been received from Europe within the past few weeks.

The weaving trade around Philadelphia seems to be in better shape than down East and the business from this trade which the spinner is now delivering is for 2/40s and 2/50s and single filling yarns. There is quite a demand for shepherd plaids using a cotton warp and merino filling with a worsted warp for the better grades of worsted filling. The weavers making shoe toppings are busy using mostly 2/40s and finer yarns.

BRADFORD SPUN YARN

2/12 to 2/16 low common	72-75
2/20 to 2/24 low 1/4	80-85
2/20 to 2/25 1/4 blood	85-87½
2/26 to 2/28 1/4 blood	95-97
2/32 1/4 blood	97½-1.00
2/20 3/8 blood	90-95
2/26 3/8 blood	95-97½
2/32 3/8 blood	1.00-1.02½
2/36 3/8 blood	1.02½-1.05
2/40 1/2 blood	1.05-1.07½
2/40 delaine	1.07½
2/50 delaine	1.12½-1.15
2/40 Australian	1.05-1.07½
2/50 Australian	1.10-1.15
2/60 Australian	1.25-1.30
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	92½-95
2 and 3 ply 10s-20s straight 1/4 blood	95-97½
2 and 3 ply 20s-24s straight 1/4 blood	97½-99½
2 and 3 ply 24s-28s straight 1/4 blood	99½-1.01½

(Reduce 8c. for yarn in oil)

FRENCH SPUN YARN

1/20 1/4 blood	95
1/20 high 1/4	97½
1/20 3/8	1.00
1/20 high 3/8	1.02
1/20 1/2 blood	1.03
1/30 1/2 blood	1.05
1/40 1/2 blood	1.07
1/50 delaine	1.10
1/40 Australian	1.05
1/50 Australian	1.10
1/60 Australian	1.20-1.22½
1/70 Australian	1.25-1.27½

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	72
1/30 50/50 White Merino Cop	74
1/40 50/50 White Merino Cop	76
1/20 60/40 White Merino Cop	77½
1/30 60/40 White Merino Cop	79½
1/40 60/40 White Merino Cop	81½

Knitting and Weaving YARNS

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

EDWARD S. HYDE
926 CHESTNUT STREET
Philadelphia, Pa.

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

JAMES LEES & SONS CO.
MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: 627-29 Bourse Bldg.
Mills and Office: Bridgeport, Montgomery Co., Pa.

J. B. Jamieson
77 Summer St., Boston
COTTON YARNS
of all descriptions
Correspondence Solicited

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

SOAPS **HIGH GRADE** SOAPS
Bleaching, Fulling and Scouring
SOAPS
Red Oil and Olive Oil Crown Soaps
SOAPS **J. O. Draper Co.** Est. 1800 **Pawtucket, R. I.** SOAPS

1/20 70/30 White Merino Cop	83
1/30 70/30 White Merino Cop	85
1/40 70/30 White Merino Cop	87
1/20 80/20 White Merino Cop	88½
1/30 80/20 White Merino Cop	90½
1/40 80/20 White Merino Cop	92½
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

WOOLEN AND MERINO YARNS

The manufacture of weaving yarns is now occupying the attention of the woolen spinners. Many of the yarn mills have a good supply of orders on hand from this trade, which seems to be the best end of the business at the present time, the demand being greater than from other sources. The demand for knitting yarns is quiet, although some business is being placed from day to day for the staple counts of 2/20 and 2/23 cut yarns. The volume of business being placed by the sweater trade is not very large. They are taking in some yarns as their orders demand. Regardless of this lull in buying it is surprising to note that the market remains firm. Prices have not advanced, but it is anticipated along all lines that if the demand for yarns should take a spurt prices will begin to advance in accordance with the volume of business being placed.

Enlargements and Improvements.

Maine, Sanford. The Goodall Worsted Company have acquired additional property in the vicinity of the Springvale Depot on which they will build a new warehouse, 150 by 60 feet, 1 story high. Plans for rebuilding the old dye house structure have been changed and the building will be larger than originally intended, and part of the space will be used for the finishing department.

Maine, Sanford. The old No. 1 Mill of the Sanford Mills is to be replaced by a new modern brick mill. This change has been contemplated for several years and the present is deemed an opportune time to make the improvement. The new No. 1 Mill will be 135 by 169 feet, 3 stories high, of brick.

Massachusetts, Blackinton. Two new cards and three mules have been purchased by the Blackinton Company. The mill is rushed with orders and some of the machinery is running evenings. The damage caused by the recent fire in the picker room has been repaired.

Massachusetts, Clinton. Three old washers on the lower floor of the Victor Mill have been taken out by the Burton Co. who now own and occupy the property, and six more modern machines have been installed. Three more old style washers will be taken out. Machinery from Holliston is being moved here.

THE RAG AND SHODDY MARKET

The demand for rags has slackened materially and the market is weaker than at our last report. Dealers are inclined to look upon large stocks as a serious danger at the present high prices and there has been a disposition to sell at slight concessions. This nervous condition is natural under the extraordinary conditions prevailing at home and abroad. Shoddy manufacturers are well employed on old orders, but are booking very few new contracts owing to the unsatisfactory conditions in the goods market. The wool waste market is quiet with prices firm and unchanged. Noils are in good demand and there is a ready market for desirable lots of waste. The cotton waste market is dull with some indications of an improvement owing to the strength of the raw cotton market. We quote as follows:

SHODDIES AND EXTRACTS

White knit	38-40
Red flannel	23-25
Red knit	27-29
Thibelts	17-18
Fine dark merino No. 1	16½-17½
Fine light merino	29-30
Fine black merino No. 2	15-16
Light delaine	20-21
Mixed delaine	12-13
No. 1 dark worsted	16-17
No. 2 dark worsted	14-15
Black worsted	18-19
Fine dark worsted clips	19-20
Blue serge, old	24-25
New blue clip	16-20
New black fine worsted clip	27-28
Light yarn, fine	28-30
Dark mixed, fine yarn	22-24
Dark blue hosiery clips, No. 1	17-20
Dark blue hosiery clips, No. 2	14-16

NEW WOOLEN RAGS

Fine merchant tailors	14-16
Choice light worsted	16-18
Fine gray worsted	20-22
Coarse gray clips	14-16
Fine dark worsted	16½-17
Black worsted	22-25
Blue worsted	22-24
Brown worsted	18-19
Blue serge	23-24
Black serges	20-21
Light serges	22-23
Dark fancies	13-14
Dark serges	13-14
New blue flannel	15-16
New scarlet flannel	18-20

SOFTS AND KNIT STOCK

Soft woolen, best	8
Red flannel	11¼
White softs	24-25
Merinoes, fine light	19-21
Thibets	12-13
Knit stock, red	14½
Light gray, underwear	9½-10
Coarse gray	15
Blue knit	12-12½
Mixed hoods	9
White knit stock	27-28

KNIT.

Mills Starting Up.

Pennsylvania, Lebanon. W. G. Starry, president of the New Idea Hosiery Co., Inc., of Harrisburg, Pa., has leased the hosiery knitting mill formerly operated by the late H. K. Deeds at 240 Guildford St., and will operate it as a branch of the Harrisburg plant under the name of the Lebanon Valley Hosiery Mill. The plant contains 40 knitting machines, 9 ribbers and 5 loopers, which will be operated on artificial and tram silk plated half hose, 240-needle goods.

You Save Enough Insurance to Pay for the Equipment

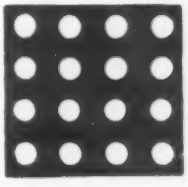
So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

Woolen and Merino YARNS

Eaton Rapids Woolen Mills

EATON RAPIDS, MICHIGAN



Perforated Plates for Wool Washing

Rinsing and Carbonizing

In Special Metal

BECKLEY PERFORATING CO.,
Garwood, N. J.

OAK TANNED LEATHER BELTING

—AND—

PICKER AND ROLLER COVERING LEATHERS

CHARLES BOND CO., 520 Arch St., Philadelphia

Cheney Silk Yarns

for Woolen and Worsted Goods

MANUFACTURERS of silk-mixture goods buy Cheney Silk Yarns with confidence. They know from experience that particular care is taken in the production of Cheney Silk Yarns. They know, too, that the firm of Cheney Brothers has proved its reliability through years of catering to this particular trade. Cheney Silk Yarns are *good* yarns and are admirably adapted for securing good results. These yarns can be supplied in any form desired—on your own loom beams or jack spools; cones, spools or bobbins; also in ball warps. Quotations and samples on request.

CHENEY SILKS

CHENEY BROTHERS

Silk Manufacturers

4th Avenue and 18th Street, New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is maintaining a steady tone with an apparent upward tendency. This is probably owing to the fact that the manufacturers in general are in the market buying the raw product, their stocks having become depleted in many cases.

In Yokohama the market remains firm in spite of the fact that much silk is coming in. Although the amount of silk on hand is only reported as 12,000 bales, there is an ample supply, and no large transactions are noted. In Shanghai the market is reported easier, and outside of tussahs shows no important change. There has been a great deal of activity in tussahs, and it is reported that in the past month over 900 bales have been imported at low prices.

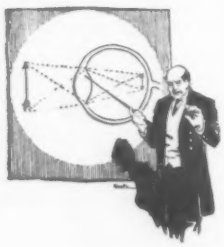
Canton reports a firm market with little activity. It had been expected that the new season silk would have come into the market, but as yet it has not been quoted, except as a thrown product. No changes are noted in the Italian market, and it remains firm with little activity. This can be accounted for, however, by the fact that it seems now quite likely that Italy will be drawn into the war, causing almost a cessation of business in many industrial plants. Very little silk is being used in Europe at the present time, and it was expected prices would recede, but such has not been the case so far.

Manufacturers in this country are still buying on a hand to mouth basis, not knowing as yet what weaves will be wanted, or how great the demand for the finished product will be. Most of them are optimistic, however, and think the fall business will show much activity. At present it is reported that only about 70 per cent. of the broad silk looms are running, and those for the most part are on novelties.

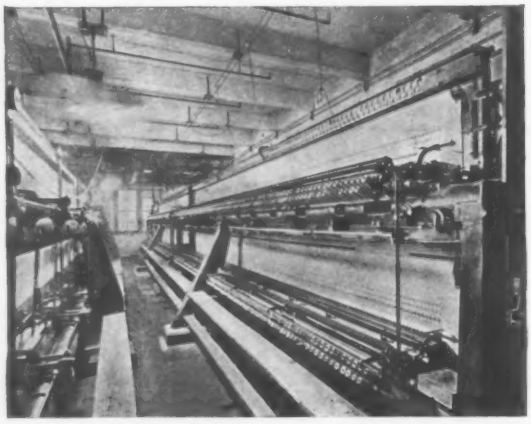
The ribbon manufacturers are again having a quiet season, but they are finding some comfort in the rumor that the millinery trade will again use their product the coming season. It is to be hoped that this prediction will come true. The dry goods districts report a fair business in broad silks, and the following are still popular: Gros-de Loudres, foulards, meteors and crepe de chine. Black and white stripes, also checks of the same color, are meeting with a good demand. There is also another broad silk called Georgette crepe, which is having a good call. Taffetas are still selling well. Manufacturers and the trade in general in the silk industry are hopeful as to the future, and it is believed by all that the fall business will show more activity than has been felt for some time. Below are prices current:

VILLA, STEARNS COMPANY
Telephone, 6174 Gramercy
American Woolen Building
221 Fourth Avenue, New York
RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams
DYED SILK FOR ALL PURPOSES
Philadelphia Office:
519 Bourse Building
Providence Office:
Howard Building

SAUQUOIT SILK MFG. CO.
INSULATING AND BRAIDING SILKS
ORGANZINE, TRAM AND HOSIERY SILKS
Fast Dye Organzines for Woolen Manufacturers a Specialty
Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St. Boston Office, 78 Chauncy St.



The Eye—
The Part It Plays
In Plant Production



Night Photograph of Embroidery Machines lighted by Cooper Hewitt Lamps

After a careful test on a considerable number of Textile Mill operatives, the engineer of a large mill writes:

> "The average vision in good daylight in our mill is 14.4 feet, and in the same place which was well lighted with Cooper Hewitt Light, the same operator could distinguish on the average of 24.8 feet***. It is such a certainty that we can distinguish the fine threads better with the Cooper Hewitt lights than with daylight that we were interested in this test, but we did not think the difference was so marked."

NOTE—This means increase of 72% in ability to see under Cooper Hewitt light.

Write for Bulletin 747

or telephone our nearest office for a trial installation of the light that is

Better Than Daylight

Cooper Hewitt Electric Company

8th and Grand Sts., Hoboken, N. J.

Boston, 161 Summer St.
Chicago, 215 Fisher Bldg.
Pittsburg, Westinghouse Bldg.
Cincinnati, First Nat'l Bank Bldg.
Cleveland, Engineers' Bldg.
Minneapolis, Andrus Bldg.
Detroit, Ford Bldg.
Philadelphia, 124 South 8th St.
St. Louis, Central Nat. Bank Bldg.

European

Grand Extra Classical Piedmont	3.90-3.95
Extra Classical Italian 12/14 12/16	3.65-3.70
Classical Italian 13/15 24/26	3.50-3.55
Best No. 1 Italian 13/15 24/26	3.45-3.50

60 days' basis

Japan

Filature Kansai Extra Extra	3.00-3.65
Filature Kansai Extra 13/15	3.45-3.50
Filature Shinshu Extra 13/15	3.35-3.40
Filature Kansai Best No. 1	3.27½-3.32½
Filature Kansai No. 1 13/15	3.25-3.30
Filature Shinshu No. 1 13/15	3.22½-3.27½
Rereels No. 1 13/16	Nominal
Rereels No. 1 1/2 13/16	Nominal
Rereels No. 1 1/2-2	Nominal

6 months' basis

China

Canton XXA 14/16	2.75-2.80
Canton XXB 14/16	2.55-2.60
Tsattle Blue Dragon and Flying Horse	2.80-2.85
Tsattle Kun Kee Mars No. 1	2.45-2.50
Tussah Filature Eight Cocoon No. 1-2	1.07½

6 months' basis

SPUN SILK

This industry is again showing activity, and spinners report a good demand for their products. While orders received are small, a general healthy growth in the business can be noted. Prices remain the same and are quoted below:

60/2	3.80
50/2	3.70
40/2	3.60
30/2	3.45
20/2	3.35
10/2	3.25

ARTIFICIAL SILK

No change can be noted in this industry, and conditions are about the same as at last report. It is expected, however, that when the European war is ended, and finances are easier, a demand will develop for artificial silk, which will again cause an activity in this trade. No change in prices which appear below:

150 Deniers English A.—bleached	1.95
150 Deniers English B.—bleached	1.85
150 Deniers English C.—bleached	1.57

MISCELLANEOUS.

*Illinois, Chicago. Upholstery trimmings, cords, tassels and fringes are being manufactured by the new H. F. Walliser Company, using 8s to 60s mercerized yarns, silk floss and 2/26s to 2/36s worsted. This new concern was organized by H. F. Walliser, formerly vice-president of the E. L. Mansure Company, and has capital stock of $25,000. H. F. Walliser is president; R. E. Walliser, treasurer; C. O. Walliser, superintendent and buyer; and P. P. Rudhart, sales manager. The equipment includes 20 narrow fabric looms operated by electric power.

SPUN SILK
YARNS FOR ALL PURPOSES
AMERICAN SILK SPINNING CO., PROVIDENCE, R.I.

MINDLIN & ROSENMAN
Importers and Manufacturers of
Our Specialty:
DYED SILK FOR THE KNITTING TRADE
on cones and tubes
RAW and THROWN SILK, ARTIFICIAL SILK
Mercerized and Cotton Yarns, Yarns and Threads
105-107 East 29th St., near 4th Ave., New York
Factory and Dyehouse, Brooklyn, N. Y.

WILLIAM RYLE & CO.,
FOREIGN AND DOMESTIC
SPUN SILK YARNS and NOILS
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.
225 Fourth Ave., Corner 18th St., NEW YORK CITY

A. P. VILLA & BROS.

YOKOHAMA
CANTON
SHANGHAI

NEW YORK

MILAN
TURIN
LYONS

95 MADISON AVENUE

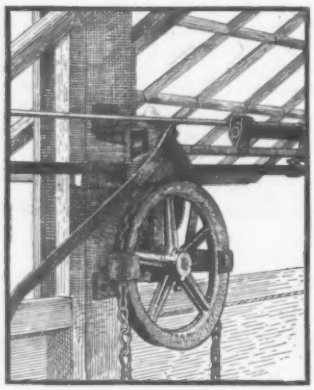
RAW, THROWN
AND
DYED SILKS

Silk on Quills or Beams

Hosiery Silk on Cones

Telephone 10080 Madison Sq.

Mills: Passaic, N. J.



The sure way to successful working conditions is the
"STRAIGHT PUSH SASH OPERATOR"
So many mills have the Drouvé Ventilating device YOU should examine the simple, certain leverage force which makes "Straight Push" so satisfactory. We can tell you of installations in your neighborhood.

Ask for our Catalog anyway.

The G. DROUVÉ CO., Bridgeport, Conn.

SILK.

New Mills.

New Jersey, Paterson. Harry Kauffman, who recently sold his interest in a dyeing concern, is starting up a ten-loom broad silk plant at 93 River St.

Enlargements and Improvements.

New Jersey, Paterson. L. Friedman, a commission winder and warper, located at 93 River St., has leased space in the mill at the corner of River and Bridge Sts., and will move there about May 1. He will install some new machinery later on.

New Jersey, Paterson. Weston E. Good, who recently purchased a mill building adjoining the Reinhardt Mill, is erecting an addition, 75 by 150 feet, one story high. Considerable repair work is being done to the interior of the main building.

New Jersey, Paterson. The Audiger & Meyer Silk Company is installing 48 new broad silk looms. They manufacture high grade tie and dress silks on present equipment of 162 looms.

New Jersey, Paterson. The Lincoln Silk Company is starting an annex plant in the Johnson-Van Vlanderin Mill, 2 Broadway, and is placing 42 broad silk looms in position.

New Jersey, Paterson. A. D. Cohen, located in the Aronsohn Mill, is installing 20 more broad silk looms.

New Jersey, Paterson. The Belmont Silk Company has taken more floor space in the Todd Mill, and has placed considerable new machinery in the new space. They have also moved their office to the opposite end of the mill.

New York, Brooklyn. Julius Kayser & Co. report that the closing of the Hornell branch will not reduce their production in the United States, as the production of the other American plants will be increased. The new branch being established at Sherbrooke, Que., will give additional production.

New York, Elmira. John N. Stearns & Co. expect to make extensive changes at the Elmira plant which will increase the production and give greater efficiency in manufacturing. It is possible that 100 looms may be installed. W. R. Hoehn, superintendent of the Williamsport, Pa., plant of the concern also has charge of the Elmira mill. Albert Guyer, who was formerly superintendent, is no longer in their employ. There is no truth in the report that the Elmira plant is to be taken over and operated by Carroll D. Smith, and Thomas Morrison.

New York, Port Jervis. The removal of machinery from Kattermann & Mitchell's old silk mill to the new building is under way. About 50 looms and other machinery have been transferred and are being operated so as to lose as little production as possible. The new mill is 2 stories high, 250 by 50 feet, of concrete construction. When fully equipped with the machinery from the old building and the new machinery to be added, it will have 700 spindles and 200 looms for making broad silks. It is expected the new plant will be in full operation within six weeks or two months.

SILK.

Enlargements and Improvements.

Pennsylvania, Allentown. Klotz & Bregenzer, of Rittersville, are remodeling the interior of their ribbon weaving plant. E. Bregenzer is the buyer.

Pennsylvania, Bangor. Further increases made by the Sterling Silk Glove Company give total equipment of 11 knitting looms and 190 sewing machines. A building on West Messinger St. was recently leased on account of lack of space in the old building and is being equipped for manufacturing silk underwear. Only recently a 3-story addition was completed. The concern manufactures silk cloth, silk gloves, mittens and underwear. W. F. Jordan is president and W. R. Jordan is treasurer and superintendent.

Pennsylvania, Coatesville. Fifty-four new broad silk looms are being installed in the plant of S. J. Aronsohn, Inc., manufacturers of dress and tie silks. It is expected more looms will be added later.

Pennsylvania, Easton. Twenty-six additional looms are being installed in the plant of the Roehlen-Pettenger Silk Company. They recently purchased a large mill building, three stories high, 30 by 110 feet, of brick and stone construction, on a lot 140 by 140 feet. The increase will give them 75 looms, making broad silks. Floyd H. Reeser is president; Ralph R. Pittenger, treasurer, and Weston Kilpatrick, manager and buyer.

Mills Starting Up.

New Jersey, Oxford. It is reported that a concern known as the Oxford Dye Works, which has an office in the Citizens' Bank Bldg., Paterson, will locate a plant here and begin operations early in April. The company has bought a mill from the Renards Silk Company and will employ 80 hands. Manus Rutler, formerly manager of a plant at Lyons, France, will have charge. The Board of Trade has secured the donation of two large buildings, which can be used as tenements for the employes.

WOOLEN.

Enlargements and Improvements.

Massachusetts, Leicester. Plans have been prepared by a local architect for a new finishing room for the Leicester Woolen Company to be built in the rear of the plant. The cloth has been taken to the Valley Woolen Mill at Cherry Valley to be finished. Business is reported to be better than for several months and the mill, which has been running on a 45-hour schedule, has returned to the full time schedule.

*Massachusetts, Lowell. Two additions will be built to the plant of the Lyon Carpet Company on West Adams Street. One addition will adjoin the rear of the present main building and will be used as a dyehouse and to provide a storage room. The other addition will be built on top of the present building. Recently the Lyon Carpet Company purchased the equipment of the Read Carpet Company, of Bridgeport, Conn., and 31 looms are to be brought to Lowell from the Bridgeport plant, to manufacture the "Ardahan Brand" of Axminster rugs.

MACUNGIE SILK COMPANY
Macungie, Pa.
Bindings and Ribbons
For binding Cotton and Woolen Bed Blankets, Go-cart Covers, Kimonas, Bath Robes, etc.
Special Colors or Shades made to order

LUDWIG LITTAUER

Tram, Thrown Silk, Organzine, Artificial Silk
Domestic and Imported, Plain, Gassed and Mercerized. Polished and Glazed Cotton, Mohair, Worsted and Tinsel.
Best Quality Harness Twine
107-109 Greene St., New York
Silk Throwing Mills, BEACON and YONKERS, N. Y.
YARNS

Alexander Smith & Son
Warping and Winding on Commission
Work Done on Frames with Swiss Motion
All Goods Fully Insured
Raw Silk Warping a Specialty
Cor. Centre and Glendale Streets *EASTON, PA.*

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
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Allentown Reed, Harness and Mill Supply Co.
Allentown, Pa.

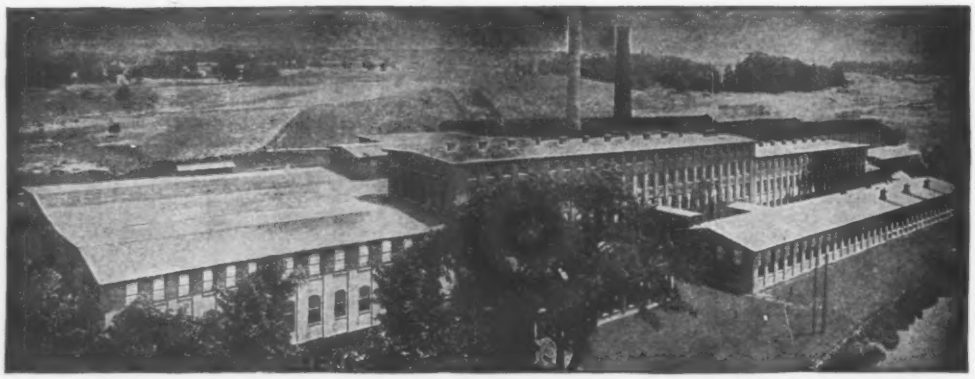
United States Conditioning & Testing Company
Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses
Offices and Laboratories, 340-44 Hudson St., (cor. Charlton St.)
NEW YORK
D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.
In universal use by thousands of manufacturers and shippers.

Also manufacturers of Oil Stencil Board. Write for prices and samples.
101 Beekman St. New York, U.S.A.

Attention Manufacturers
Commission house of old standing with representatives covering the entire United States desires accounts for such goods that are sold to the white goods and linen departments, both retail and wholesale. **Towels and Mercerized Damask, etc., or any kind of plain or fancy Cotton Goods.** Will make investment in factory, make advances or buy the goods outright if necessary, but must have sole control of the line. Address "Commission Merchant," care of Textile World Record, 120 Liberty Street, New York.

Lowell Crayons
Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX



UTICA WILLOWVALE BLEACHING CO.

Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

JOHN MacMANUS, Manager CHADWICKS, N. Y.

VICTOR MILL STARCH

THE WEAVER'S FRIEND

IT BOILS THIN. PENETRATES THE WARPS. INCREASES BREAKING STRENGTH. THE STANDARD SIZING AND FINISHING STARCH FOR TWELVE YEARS. A TRIAL WILL CONVINCE YOU.

THE KEEVER STARCH CO.

COLUMBUS - - OHIO

EASTERN AGENT - - - D. H. WALLACE, 8 BEACON STREET, BOSTON, MASS.
SOUTHERN AGENT - - JAMES H. MAXWELL, GREENVILLE, S. C.

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1915	$35,313,539.27
LIABILITIES (Except Capital)	16,610,065.11
SURPLUS AS REGARDS POLICY HOLDERS	18,703,474 16
Losses Paid Since Organization over	156,000,000 00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

The unsettled conditions in the dyestuff and chemical trades caused by the European situation make it impossible to get quotations which would be of any value to our readers. The dyestuff and chemical list of quotations will therefore be omitted until this trade is again on a normal basis.

FIRES.

Connecticut, New London. A fire of unknown origin destroyed the plant of the Thames Dyeing & Bleaching Company, at Bartlett's Switch, near Montville, causing loss which is reported to be about $65,000. The insurance is said to be $45,000. Recently an addition was built and the capacity was doubled. They dyed and bleached cotton raw stock and cotton waste. Thomas G. Haney is president, and John C. Geary, treasurer.

Massachusetts, Boston. The larger part of the office building at 10-12 High St. was gutted by fire causing damage estimated at about $250,000. The only textile concern in the building is the Felters Company, which has mills in Millbury, Mass., and Lestershire and Middleville, N. Y. They are not located in the main section of the building where the greatest loss occurred and the damage sustained by them is comparatively small. For the present their offices can be reached by entering at 14 High St.

Massachusetts, Fitchburg. A fire which started in the corner room of the Nockage Mills was extinguished by the automatic sprinklers with only a few hundred dollars loss, chiefly by water. The operation of the plant is not interfered with.

Minnesota, Litchfield. The Litchfield Woolen Mills have been destroyed by a fire which started in the boiler room. The loss is partly insured. Blankets, flannels, mackinaws and yarns were manufactured on 3 sets of cards and 9 broad looms. It is probable that the plant will be rebuilt as H. Klauser, the head of the concern, incorporated the business only a short time ago in order to give an interest to his family and perpetuate the business, which is understood to be very successful.

New York, Rensselaer. The plant of William Barnet & Son, manufacturers of wool shoddies on equipment of 8 pickers and 8 sets of cards, has been completely destroyed by fire. They will rebuild as soon as possible. William Barnet is buyer. The post office address is Box 148, Albany, N. Y.

New York, Tottenville. The small silk plant of J. W. O'Meara has been destroyed by fire. Undertakers' trimmings were manufactured on six looms and two braiders. The loss is placed at about $9,000.

Pennsylvania, Philadelphia. A fire of unknown origin damaged the plant of the Vim Knitting Mills at 2420 Waterloo St. to the extent of $8,000. The mill, which is owned by M. M. Adams, is operated on misses' and infants' hosiery with 30 knitters and 17 ribbers, the production being sold through N. Y.

Barrett Specification Roofs

Approved by the Underwriters' Laboratories.

THE Underwriters' Laboratories of Chicago investigates and classifies all kinds of building materials for the Fire Underwriters, and the result of these investigations is used in the consideration of insurance rates and classifications.

In main, its reports cover fire hazard, but its investigations also include: durability, strength, practicability, etc., of the product or material tested.

We filed with the Underwriters' Laboratories a set of claims regarding Barrett Specification Roofs and materials.

Their investigation of these claims, covered several years and included a tremendous work in their own testing plant in Chicago and in the field where a large number of old roofs were visited and studied.

Their report substantiates our claims, as will be seen by the following excerpt:

"Their roof coverings (Barrett Specification Roofs) have been shown by tests and investigations at Underwriters' Laboratories to afford a high degree of fire protection to roof deck; to be not readily flammable and not to carry or communicate fire to any material extent; not to slip from position when heated; to possess little or no flying brand hazard; to exert considerable blanketing influence upon fires within buildings; to be durable under service conditions for periods in excess of 10 years; and to fulfill the requirements for the classification given."

No wonder Barrett Specification Roofs take the base rate of insurance.

Photographs taken after conflagrations and reproduced in the Report show Barrett Specification Roofs with large areas still intact in gutted buildings, constituting, with brick walls and large charred timber, the sole survivors of the fires!

We have accepted the inspection service of the Underwriters' Laboratories at our factories for regular testing of the materials for these roofs as to quality and weight of Barrett Specification Tarred Felt and Barrett Specification Pitch, and henceforth these materials will carry the Underwriters' Laboratories label in addition to our own Specication label.

A copy of The Barrett Specification, with roofing diagrams, also complete report of Underwriters' Laboratories mailed free on request

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle

THE PATERSON MFG. CO., Limited: Montreal Toronto Winnipeg Vancouver
St. John, N. B Halifax, N. S. Sydney, N. S.

TRADE B MARK

MILL STOCKS

FALL RIVER MILLS

	Bid.	Asked.
American Linen	55	57½
Arkwright Mfg. Co.	...	63½
Barnaby Mfg. Co.	...	40
Barnard Mfg. Co.	...	57½
Border City Mfg. Co.	103	105
Bourne Mills	101	...
Chace Mills	100	102½
Charlton Mills	85	...
Conanicut Mills	...	95
Cornell Mills	145	...
Davis Mills	90	...
Davol Mills	87½	92½
Flint Mills	97½	...
Granite Mills	...	...
Hargraves Mills	...	42½
King Philip Mills	103½	...
Laurel Lake Mfg. Co.	...	100
Lincoln Mfg. Co.	...	72½
Luther Mfg. Co.	...	120
Merchants' Mfg. Co.	75	80
Mechanics Mills	72½	...
Narragansett Mills	88½	90
Osborn Mills	...	97
Parker Mills	37	42½
Pilgrim Mill, pfd.	...	90
Pocasset Mfg. Co.	...	95
R. Borden Mfg. Co.	123½	...
Sagamore Mfg. Co.	175	...
Seaconnet Mills	...	55
Shove Mills	72½	75
Stafford Mills	...	72½
Stevens Mfg. Co.	123	125
Tecumseh Mills	104	...
Troy C. & W. Mfg. Co.	...	...
Union Cotton Mills	167½	...
Wampanoag Mills	...	70
Weetamoe Mills	...	80

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	150	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	112½	...
Booth Mfg. Co., com.	15	...
Booth Mfg. Co., pfd.	65	...
Bristol Mfg. Co.	...	55
Butler Mill, com.	...	75
Butler Mill, pfd.	...	100
City Mfg. Co.	...	86
Dartmouth Mfg. Co., com.	150	155
Dartmouth Mfg. Co., pfd.	101	...
Gosnold Mills, pfd.	88	90
Grinnell Mfg. Co.	170	...
Holmes Mfg. Co., com.	120	...
Holmes Mfg. Co., pfd.	110	...
Hathaway Mfg. Co.	150	...
Kilburn Mill	110	...
Manomet Mills	117½	120
Nashawena Mills	66	70
Neild Mfg. Co.	110	114
N. B. Cotton Mills Corp., com.	100	...
N. B. Cotton Mills Corp., pfd.	99	...
Nonquitt Spinning Co.	...	85
Page Mfg. Co.	75	...
Pierce Mfg. Co.	290	...
Pierce Bros.	100	...
Potomska Mills	118	...
Quisset Mills, com.	112½	...
Quisset Mills, pfd.	108	110
Sharp Mills, com.	86	...
Sharp Mills, pfd.	...	106
Soule Mills	50	60
Taber Mills	...	102½
Wamsutta Mills	123	...
Whitman Mills	120	125

CANADIAN MILLS

C. Cotton, pfd.	...	71
Dominion Textile	64½	65½
Dominion Textile, pfd.	...	101
M. Cottons, pfd.	...	99

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com. N. H.	100	*62½
Amoskeag Mfg. Co., pfd., N. H.	100	*99
Androscoggin Mills, Me.	100	140¼
Arlinton Mills, Mass.	100	75
Appleton Co., Mass.	100	172
Bates Carpet Co., Me.	100	*220¼
Bigelow-Hartford, pfd.	100	*105¼
Boston Duck Co., Mass.	100	1280
Boston Mfg. Co., Mass.	100	85
Cabot Mfg. Co., Me.	100	100
Chicopee Mfg. Co., Mass.	100	90
Continental Mills, Me.	100	75¼
Dwight Mills, Me.	100	*1035
Edwards Mfg. Co.	100	99
Essex Co., Mass.	100	190¼
Everett Mills, Mass.	100	109
Fisher Mfg. Co., Mass.	100	125½
Franklin Co., Me.	100	201½
Great Falls Mfg. Co., N. H.	100	*170½
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	77½
Hill Mfg. Co., Me.	100	90¼
Jackson Co., Me.	1000	890
Lancaster Mills, Mass.	100	*60⅛
Lawrence Mfg. Co., Mass.	100	51¾
Lockwood Co., Me.	100	97
Lowell Bleachery, Mass.	100	126⅛
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	115⅜
Massachusetts Cotton Mills, Ga.	100	96⅜
Massachusetts Cotton Mills, Mass.	100	115
Merrimack Mfg. Co., pfd., Mass.	100	83½
Middlesex Co., Mass.	100	55
Middlesex Co., pfd., Mass.	100	75
Monadnock Mills, N. H.	100	1000
Nashua Mfg. Co., N. H.	500	711¼
Naumkeag Steam Cotton Co., Mass.	100	195¼
Newmarket Mfg. Co., N. H.	100	95
Otis Mfg. Co., Mass	1000	1852½
Pacific Mills, Mass.	100	115⅜
Pepperell Mfg. Co., N. H.	100	340
Plymouth Cordage Co., Mass.	100	218½
Salmon Falls Mfg. Co., N. H.	300	275
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1305
Tremont & Suffolk Mills, Mass.	100	100½
Waltham Blchy. & Dye Wks., Mass.	100	*100¼
York Mfg. Co., Me.	100	85

——*Sales since Dec. 15, 1914.

SOUTHERN MILLS

	Bid.	Asked.
American Spinning Co.	155	...
American Spinning Co., pfd.,	100	...
Arkwright Mills	...	100
Avondale	120	126
Arlington	130	136
Brookside	...	...
Cannon	125	...
Carbarrus	115	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	100
Clara	100	...
Cliffside	190	...
Columbus Manufacturing Co.	...	85
Darlington	...	83½
Erwin, pfd.	100	...
Easley	...	125
Florence	125	126
Gibson, com.	...	105
Grendie	...	96
Glenwood	...	150
Glen Lowry, pfd.	...	76
Highland Park	...	200
Highland Park, pfd.	...	101
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	125
Kesler	140	160
Loray Mills, pfd.	...	86
Modena	...	96
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-Six	130	140
Orr	...	86
Ozark	100	10
Pacolet Mfg. Co., pfd.	100	...
Patterson	130	...
Piedmont Mfg. Co., pfd.	150	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	100	103
Salisbury	150	...
Roanoke Mills	...	155
Saxon	...	...
Spartan	100	...
Toxaway	...	131
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107
Washington Mills	...	...
Washington Mills, pfd.	...	100
Woodside Mills Co., com.	...	88½
Woodside Mills Co., pfd.	...	80
Woodside Mills Co., guar.	...	101
Watts	...	85
Williamson	...	125
Ware Shoals	70	...
Whitney	110	120
Woodruff	...	107
Young Hartsell	90	...

FACTS AND GOSSIP.

Massachusetts, Clinton. The Bellevue Mills, manufacturers of worsted suitings and dress goods, are running to full capacity and arrangements are being made to open what is known as the Allen Street Mill in order to get out a larger production.

Massachusetts, Dodge. C. W. Pike has received an order to spin yarn for the Bigwood Woolen Company, of Spencer, which will keep him busy for four months. It is reported the weaving department of 24 looms, which has been lying idle for some time, may be started up in the near future.

BACKFILLER
NATURE'S MOST BEAUTIFUL WHITE
Opaqueness. Weight. Thoroughly Penetrates the Warp. Strengthens Goods.
SEND FOR SAMPLE
INTERNATIONAL PULP CO., - 41 Park Row, New York City

Minerva
A WATERPROOFER FOR CEMENT-CONCRETE
F. WILLIAM STOCKER, INC. HOBOKEN, N. J.

THE POHL MACHINE CO. 230 EAST 79th ST. NEW YORK
SPECIALTY PASTES FOR
ARTIFICIAL SILK, SILK THREAD FINISHING MACHINES,
CREY SILK WARPS. ALL SILK PASTES CONTAIN BEESWAX
PASTES FOR COTTON (ROSIN PASTE). SAMPLES CHEERFULLY SENT OR WE WILL MATCH YOUR SAMPLE. SPECIAL PASTE PREPARED ON REQUEST.

FACTS AND GOSSIP.

Arkansas, Texarkana. A cotton manufacturing concern is negotiating with the Board of Trade regarding the establishment of a mill in Texarkana. Leo Krouse, a local business man, asked that a committee be appointed to investigate local manufacturing conditions.

California, Long Beach. G. A. Parks is interested in information on machinery for making cotton batting.

Canada, Ontario, London. The Middlesex Mills, Ltd., has been incorporated with capital stock of $80,000 to manufacture woolen and knitted goods. The incorporators are Dr. W. J. Teasdale, Fred Barnett and Albert Mitchell, of London.

Canada, Ontario, Toronto. Canadian woolen and knit goods manufacturers have formed a new organization known as the Canadian Textile Association. The purpose of the Association, as stated, is to further the interests of the industries represented in connection with the granting of war contracts. F. Barry Hayes, president of the Toronto Carpet Company, is president; James Kendry, president and managing director of the Auburn Woolen Co., Peterboro, Ont., is vice-president, and T. D. Wardlaw, a manufacturers' agent, of Toronto, is secretary and treasurer.

Canada, Ontario, Toronto. The Textile Mfg. Co., Ltd., has been organized with capital stock of $50,000.

Connecticut, Bridgeport. The Salt's Textile Mfg. Company has filed with the Secretary of State a certificate showing an increase of its capital stock from $2,000,000 to $3,000,000. Last October the capital was increased from $100,000 to $2,000,000.

Connecticut, Danielson. It is reported the Danielson Cotton Company is successfully manufacturing a large quantity of men's worsted goods in addition to its regular cotton lines.

Connecticut, Mystic. At the recent sale of the Royal Linen Mills the property was purchased by Harold F. Sherman, formerly superintendent of the Dudley Mills Co., Worcester, Mass. Mr. Sherman states that he cannot advise definitely at this time in regard to the use to which the property will be put. He is working on plans which will later be made public. It was reported that George Barker, president of the Swiss Textile Co., of Warren, R. I., had purchased the bleaching machinery in the Royal Linen Mills and was negotiating for the purchase of the mill from Mr. Sherman with a view, it was said, of using the building for the manufacture of sanitary napkins and operating it in connection with the Swiss Textile Company's plant at Warren. This is denied by Mr. Barker. As recently reported the Swiss Textile Company has had plans prepared for a new mill in Warren but it is not understood that any contracts have been awarded.

Connecticut, Springdale. The British American Mfg. Company, Inc., of this place, is demonstrating at the "Made in U. S. A. Exposition" being held in New York, a new process of waterproofing known as "Styma." It is claimed the process is different from the ordinary waterproofing oper-

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

Allis-Chalmers Manufacturing Company

Power and Electrical Equipments

Milwaukee - Wisconsin

For all Canadian business refer to
Canadian Allis-Chalmers, Limited, Toronto, Ont.

ATTENTION

Mill Managers, Superintendents and Overseers

YOU are keen for information that bears on the operation and maintenance of your mill at ***reduced cost***, made possible by increased efficiency. To aid you in your problem we have just published a text-book dealing with the operation of textile machinery at minimum cost for maintenance and lubrication—a book which clever mill-men tell us contains mighty valuable information.

IT is entitled "Lubrication of Textile Machinery" and we have reserved a copy for YOU. If you will promptly send us your address we will be happy to mail YOUR copy. No obligation whatever.

New York and New Jersey Lubricant Co.

165 Broadway, New York. 1430 Michigan Ave., Chicago, Ill.

ation and has many distinct advantages. E. A. Brinckerhoff, N. Y., the head of the company, is quoted as stating that the process is being applied to upholstery goods, shoe goods, automobile tops, and clothing, and that he expects to advertise it extensively in the near future.

*Connecticut, Willimantic. A location for a branch plant within 300 miles of New York City is being sought by A. G. Turner Company, silk throwsters. The plant at Willimantic also may be moved to some other city. They state that the demand for female labor in Willimantic is greater than the supply and consequently wages are so high that they find it impossible to meet the prices quoted by their competitors operating in the mining regions of Pennsylvania. 11,000 spindles are operated at Willimantic.

*Florida, Jacksonville. The cotton mill project in which H. S. Whitcomb was recently reported interested is for the location of a $550,000 cotton mill to manufacture print cloths on the Municipal Docks of Jacksonville. The matter seems very indefinite.

Georgia, Columbus. Eastern promoters are looking for a site and for financial support for a new cotton mill which it is proposed to locate at Phenix City, on the Alabama side of the Chattahoochee River, near Columbus, according to J. T. Bland Real Estate & Insurance Co. The men interested have conferred with the Columbus Power Company in regard to securing electrical power to operate the projected mill

Georgia, Rossville. John L. Hutcheson, vice-president of the Peerless Woolen Mills, is quoted as stating that the plant is taxed to the limit to supply the orders on hand, and a schedule of sixty hours a week is in force. Twelve sets and 200 looms are operated on cassimeres and worsteds.

Indiana, Nappanee. The New Process Hemp Company has increased its capacity and will install a new 150 h. p. boiler.

Maine, Pittsfield. Changes have been made in the management of the Smith Textile Co., Inc., Ira W. Fitz being elected president, Harry Manser, treasurer, and John Henzie, manager. Fred R. Smith, who has acted as president, treasurer and manager, has resigned. Messrs. Fitz and Manser live in Auburn and have not been previously connected with the woolen industry. Mr. Henzie was superintendent of the Linn Woolen Company, at Hartland.

Massachusetts, Amesbury. The Hamilton Woolen Company has given an option on its idle plant here to men who propose to repair the property and rent manufacturing space with power. The men interested are clients of Hewitt & Willaims, lawyers, 18 Tremont St., Boston. The Hamilton Woolen Company dismantled the plant several years ago and since that time has been offering the property for sale.

RATS AND CONTRACTS (ANNOUNCEMENT)

72 Front Street, New York, February 1, 1915.

To Mill Owners and Superintendents:

The VIRUS LIMITED INC. of 72 Front Street, New York, wish to announce that they have taken over the business formerly conducted by the DANYSZ VIRUS LIMITED, of the same address and that they are now prepared to accept yearly contracts for the extermination of rats and mice and that in connection with all such contracts the wonderful bacteriological preparation, DANYSZ VIRUS, discovered and prepared by Dr. Jean Danysz of the Pastuer Institute of Paris will be used exclusively. This company also manufactures a roach exterminator of the greatest merit and we will be glad to send a sample of same to those interested in giving same a trial. Write for full information.

Yours truly,

Department 4

VIRUS LIMITED INC.

JOHN E. KENDRICK, President MYRON FISH, Treasurer M. C. FISH, Secretary

American Supply Co.

Manufacturers of Reeds, Harness, Belting and General Mill Supplies

We make a specialty of Harness for American Warp Drawing-in Machine

OFFICE and STORE—135-137 Washington St., Providence, R. I. FACTORIES—Central Falls, R. I. and Fall River, Mass.

F. C. BARTON

65 Worth Street, New York

MANUFACTURERS OF

"LILY" BRAND NARROW FABRICS WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

F. C. BARTON, President

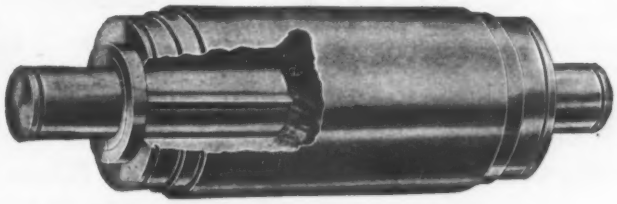
65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

Guaranteed Calender Rolls FOR ALL PURPOSES

The line includes:
Paper Rolls,
Husk Rolls,
Cotton Rolls,
and Combination
Cotton
and Husk Rolls



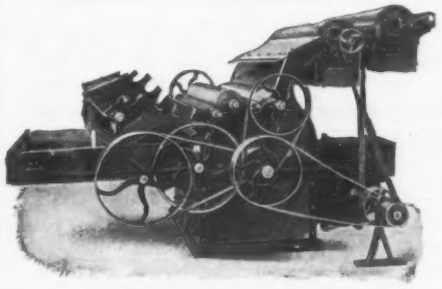
All are fitted with Perkins Patented Spline, which prevents slipping or turning on the shaft.

THE PERKINS ABSOLUTE GUARANTEE COVERS EVERY ROLL

Ask for Complete Catalog No. 85 B

B. F. PERKINS & SON, INC., HOLYOKE, MASS.

Wool Burring and Picking Machinery
Cloth Finishing Machinery



Parkhurst Burr Picker

CURTIS & MARBLE MACHINE CO., WORCESTER, MASS.

Allen Safety Set Screws

With our process of manufacture, we can make safety set screws much shorter than the diameter of the screws. The entire length of screw is utilized either for solid metal at the point or depth of socket for the wrench. No waste space filled with chips as in broached screws. We are prepared to make, promptly, special safety set screws to meet your requirements in diameters from ¼ to 1½ in. Any length, point or thread.

Send for Circular No. 6 and free sample screws for testing

The Allen Mfg. Co. Hartford, Conn.
135 Sheldon Street

The Metallic Drawing Roll Co.

INDIAN ORCHARD, MASS.

MANUFACTURERS OF

Metallic Rolls

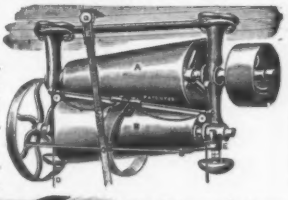
Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

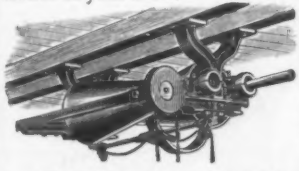
WRITE FOR PARTICULARS

Variable Speed Countershafts

Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





We'll furnish them for either floor or hanging use.

Over 10,000 Sets in operation in this Country and Europe.

Send for Catalogue

EVANS FRICTION CONE COMPANY
G. Frank Evans Newton Center, Mass.

Cutting Dies

— FOR —

"Straight Line" Cloth Analysis

And Determining Average Yarn Number of Fabrics

The "straight line" method of cloth analysis has been used by us for years. It is equally well adapted for cotton, woolen, worsted or linen fabrics.

The value of this method is conclusively demonstrated by the fact that the U. S. Treasury Department has recommended it to Customs Collectors and Appraisers as the simplest method of determining the average yarn number on which the tariff on cotton cloth is based.

The sample having an area of 1/300th square yard (4.32 square inches) can be cut in any form desired. The rectangular die shown in the illustration is what we have found convenient.

For the convenience of the trade we have arranged to supply dies like this at $5.00 each (F. O. B. Boston). This includes instructions for use.

Having cut a sample of cloth with this die and weighed it on an ordinary grain scale, calculations to obtain the following information can be quickly made for cotton, woolen, worsted or linen:

Average number of yarn: woolen runs or cut; worsted, cotton or linen number.
Number of each kind of yarn.
Grains per square yard.
Ounces per running yard.
Ounces per square yard.
Running yards per pound.
Square yards per pound.
Number of yarn when spun.

This method of calculation is invaluable for analyzing fabrics that are to be duplicated or imitated.

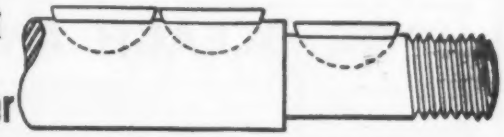
The United States appraisers and custom house officers use a system based on similar data, and these calculations will be in constant use by importers who wish to know what the duty will be on cotton cloths imported, and by domestic cotton manufacturers who wish to ascertain what the duty will be on competing foreign goods similar to goods of their own manufacture. We do not supply the grain scales, but these may be bought of any supply house.

Textile World Record, 144 Congress St., Boston, Mass.

—OR—

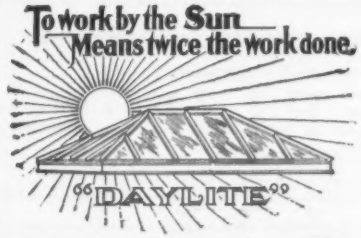
Alfred Suter, 200 Fifth Avenue, New York

Key Seating Attachment
FOR
Whiton Gear Cutter



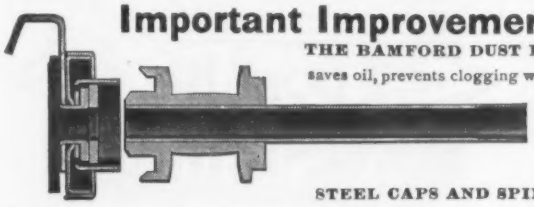
We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

THE D. E. WHITON MACHINE CO.,
19 Oak Street, New London, Conn.



Van Noorden Skylights
ADMIT DAYLIGHT NOTHING ELSE
Applicable wherever daylight is desired.
Send for Catalogue
E. Van Noorden & Company
100 Magazine St., Boston, Mass.

FOSTER SUPERHEATERS
Installed in any type of boiler without change in setting. Uniform superheat guaranteed.
Power Specialty Company,
BOSTON: 50 Congress Street **NEW YORK: 111 Broadway.**



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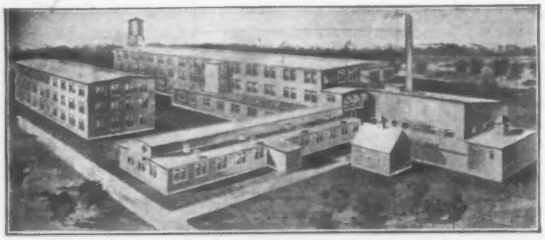

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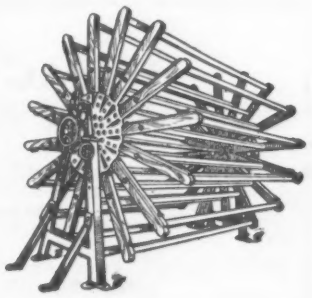

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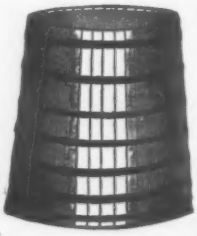

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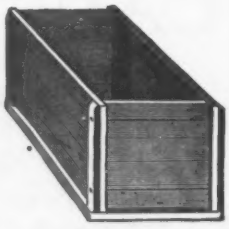

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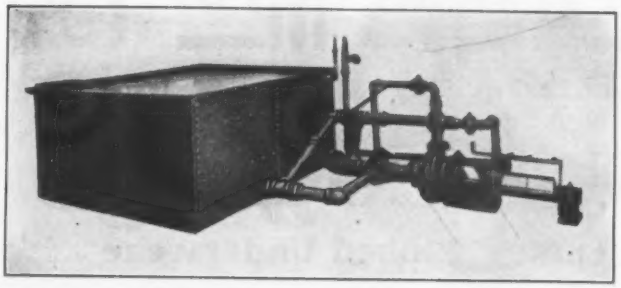

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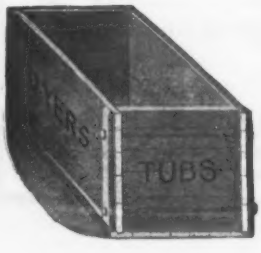

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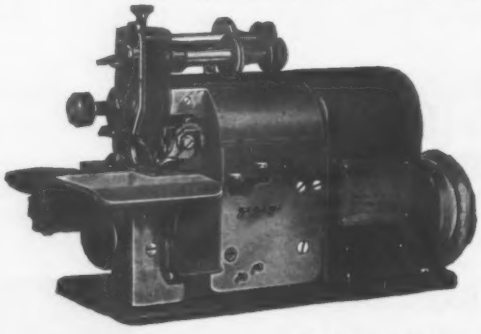

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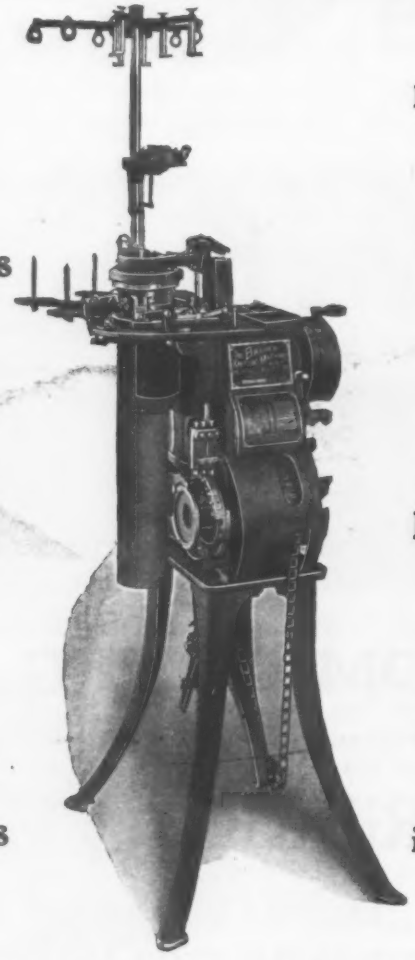

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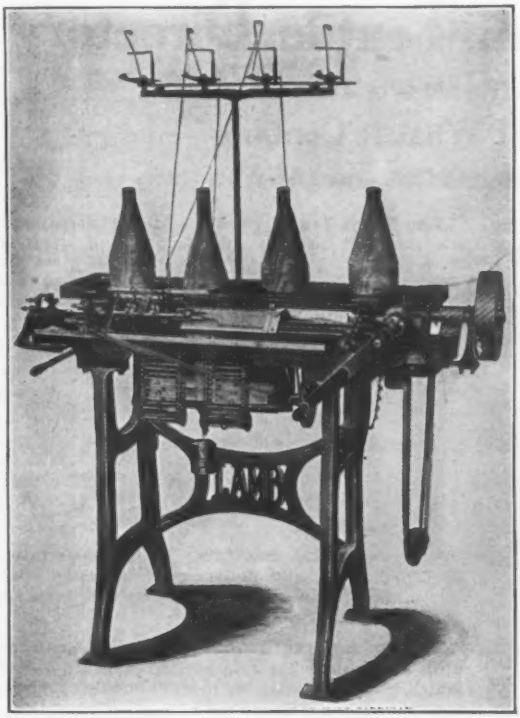

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Full information is given about each mill in almost every instance, viz.: the name of the company or firm, names of officers, agent, superintendent, the character of goods made, machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct, and in many instances the name of the man is given who buys the raw material and supplies. In this section of the Directory all the mills in one place are arranged under the head of that town, but so designated by boldface letters that the kind of mill is determined at a glance, so that a person looking, for instance, only for woolen mills can pick them out instantly. This system of arrangement is conceded to be the most convenient of any as it groups all the mills in one town together and is self-indexing, while at the same time those interested in a particular class of mills, such as cotton, silk, or knit, can find them as easily as if they were classified separately.

The Map Feature was originated by the Textile World in 1894, and is copyrighted. There are 19 of these textile maps, which show only the cities and towns where there are textile establishments. 19 maps.

An Alphabetical Index to the textile establishments in the United States and Canada, about 7000.

Mills with Worsted Machinery. A separate list is compiled of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

The Yarn Trade Index. In this department are classified lists of manufacturers of different kinds of yarn who spin for the market. It gives the size of yarn spun and the form in which the yarn is put up, together with the selling agents of the mills, or if sell direct. About 900 names.

Classified List of Manufacturers This is a new section in which all the manufacturers of textile fabrics are listed under suitable headings showing the classes of goods made.

Commission and Order Section. In this department are classified lists of establishments doing dyeing, bleaching, printing, finishing, and mercerizing on order, sub-divided according to the class of work done. About 500 names.

Raw Material Section. In this department are complete lists of dealers and brokers in wool, cotton, shoddy, waste and extracts, and wholesale rag dealers. About 2500 names.

Selling Agents and Dry Goods Commission Houses in the principal cities of the United States, giving the character of goods handled. About 2300 names.

Textile Associations. Owing to the growing number of inquiries for information of the various associations a list of all the textile associations in the United States and Canada has been included in this year's Directory. The names of associations, officers and addresses are given.

Machinery and Supply Section. This contains a carefully classified index of builders of textile machinery and dealers in mill supplies. About 800 names and 500 headings.

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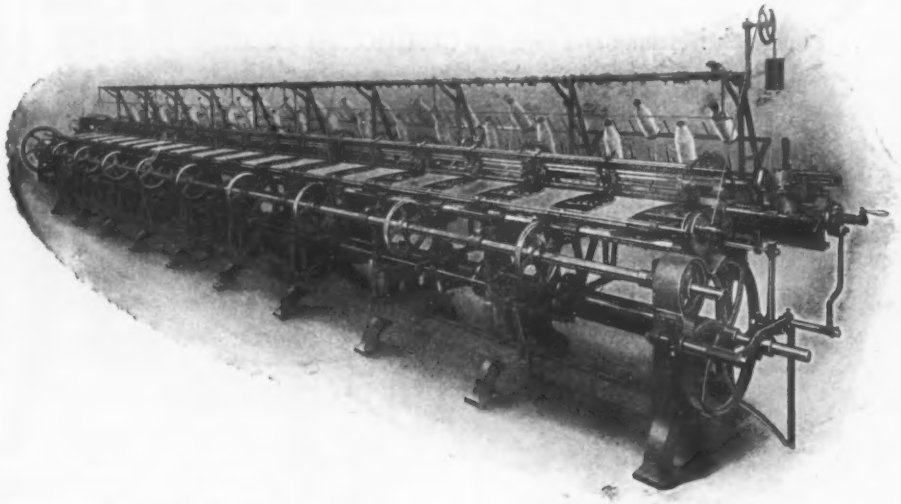
and their two Branch Works

H. ALBAN LUDWIG and THEODOR LIEBERKNECHT

Chemnitz, Germany

Largest Manufacturers of all Classes of Hosiery Machines



Schubert & Salzer, in addition to the plant of H. Alban Ludwig, have recently acquired the plant of Theodor Lieberknecht and continue to build Full Fashioned Hosiery Machines in each of the three plants, retaining the special features of each individual type and at the same time using on all three machines various patented devices and all the practical attachments known to the trade. These machines are built in all gauges from 14 to 34 needles to the inch and from 12 to 24 sections.

Best Constructed, Most Economical and Productive Machines on the Market

REFERENCES:

All the leading manufacturers of full-fashioned hosiery in this country.

American Representative:

OTTO WALTHER, 507 Bourse, Philadelphia

¶ **The Tandem Interlock Machine** has everywhere awakened spontaneous and enthusiastic admiration.

¶ The beauty of **form** and **finish** is generally accepted as the last word in sewing machine designing for a long time to come.

¶ In this machine, one immediately recognizes the rare qualities in **construction** and **workmanship** which are so plainly apparent and so eagerly sought.

¶ In this wonderful machine every vestige of former vogue in frame construction has vanished. The finally-perfect method of **product direct from cylinder** has been accomplished.

¶ This is but one of the admirable touches which distinguish the Tandem Interlock Machine and give it a **distinction peculiar to itself.**

¶ The utmost talent of the Union Special Machine Company has been exercised and the acme of creative thought is expressed in the **improved design** and **skilled workmanship.**

¶ Not merely a few refinements, but the **highest form of refinement** at every point, even to minor details.

¶ *Certainly every underwear manufacturer will find the greatest interest and satisfaction in the Tandem Interlock Machine. Your critical inspection is invited. Write for circular.*

Union Special Machine Co.

CHICAGO, 300 West Kinzie St.
NEW YORK, 65-69 Bleecker St.
ST. LOUIS, 1127-29 Pine St.
SAN FRANCISCO, 682 Mission St.
MINNEAPOLIS, Old Colony Bldg.
TORONTO, ONT., CAN., 64 Temperance St.
MONTREAL, QUE., CAN., 281 Craig St. W.
BOSTON, 144 Kingston St.
PHILADELPHIA, 731-733 Arch St.
AMSTERDAM, N. Y., 13 Railroad St.
COHOES, N. Y., 51 Mohawk St.
UTICA N. Y., 3-9 Blandina St.
ROCHESTER, N. Y., 114 St. Paul St.
CINCINNATI, 434 Elm St.

Drying Forms

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

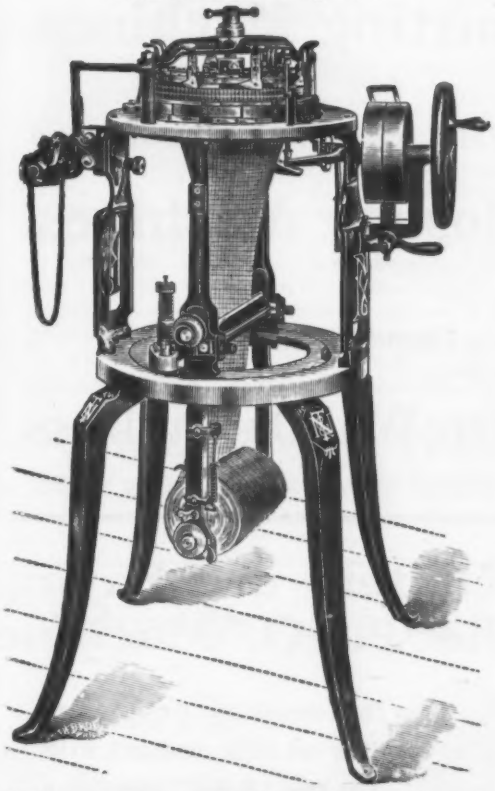
BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

Hosiery Boards

NYE & TREDICK CO.

718-720 Cherry Street
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

NYE & TREDICK CO.

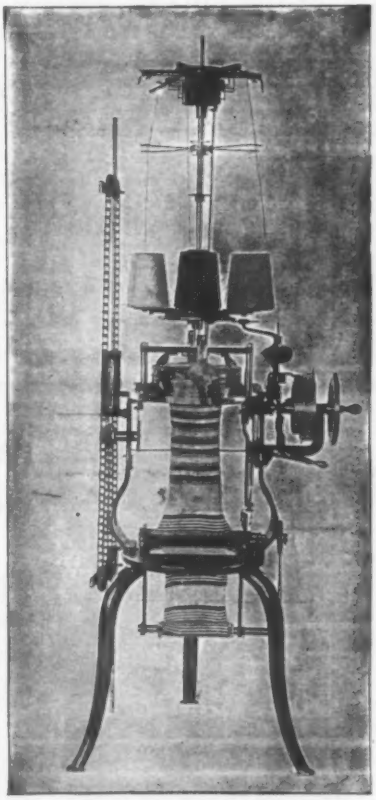
1915

CRANE MFG. CO.

Established 1870 LAKEPORT, N. H. Incorporated 1890

Spring and Latch Needle Machines

for both Rib and Plain Work
Economically Producing
A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC 3-COLORED PLAIN STRIPER

Made in sizes from 7½" to 14½" inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

The fabrics from this machine are used for bathing suits, theatrical and athletic goods.

These machines are second to none in the market.

The Crawford stop-motion is applied when requested.

SOME CRANE FEATURES.

Patent removable hardened Wing Burr Wheels.

Patent Thread Stop Motion can be fitted to 20 in. and 32 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.

Our flat machine is adapted for knitting collarettes.

E. O. SPINDLER

350 Broadway, New York, N. Y.

AGENT FOR

"Dubied" Flat Knitting Machines

For the sweater, etc. trade

BUILT BY

EDWARD DUBIED & COMPANY, Couvet, Switzerland

AND

Full Fashioned Hosiery Machines

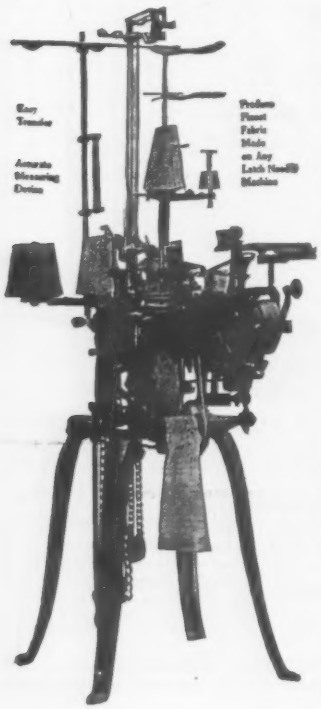
"Cotton System"

BUILT BY

DAVID RICHTER, INC., Chemnitz, Saxony

The War Doesn't Interfere With Our Business

Your inquiry will receive prompt attention



What Knitters are Saying About the "P.&O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P.&O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

SAVES 10% ON YARN

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

Write for full particulars

PAXTON & O'NEILL

541 N. THIRD ST., PHILADELPHIA, PA., U. S. A.

The Reece Button-Hole Machine

For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from ⅛ of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

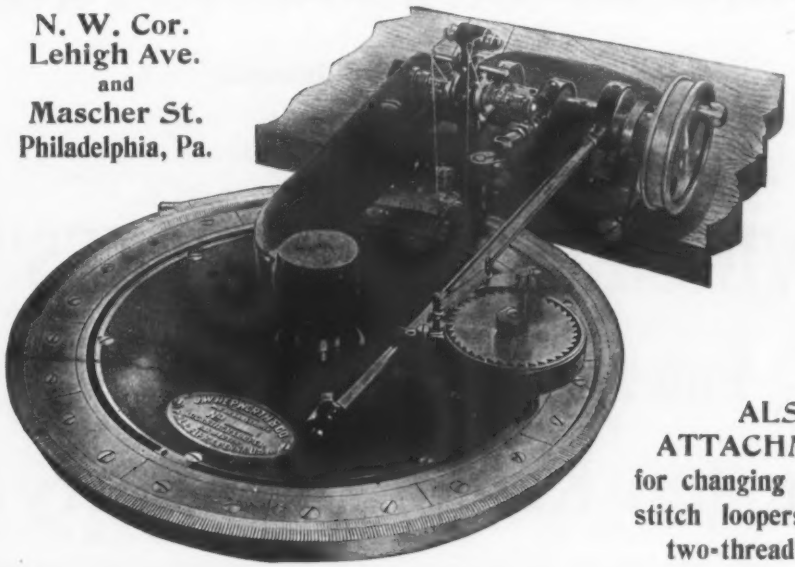
The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

THE REECE BUTTON-HOLE MACHINE CO.

Office and Factory - 500 to 514 Harrison Avenue, Boston, Mass

John W. Hepworth & Company

N. W. Cor.
Lehigh Ave.
and
Mascher St.
Philadelphia, Pa.

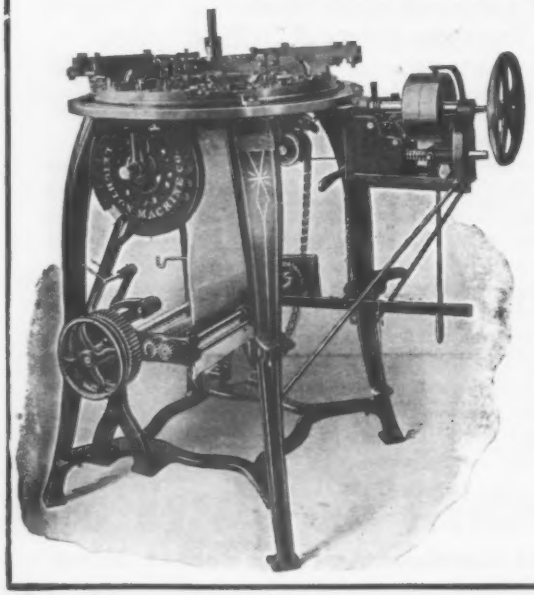


Makers of
Two Thread Elastic Lock Stitch Loopers

ALSO
ATTACHMENTS
for changing our single stitch loopers into the two-thread loopers

THE LEIGHTON KNITTER

HAS EARNED THE REPUTATION OF PRODUCING



Firm, Elastic Garments

USING LOW GRADE STOCK

THESE MACHINES ARE BEING USED FOR

High Grade Goods

MORE AS COMPETITION INCREASES

Real Efficiency

Means Excellent Stitches with ECONOMICAL OPERATION

For Particulars ask

LEIGHTON MACHINE CO.

Manchester, N. H.

Jenckes Knitting Machine Co.

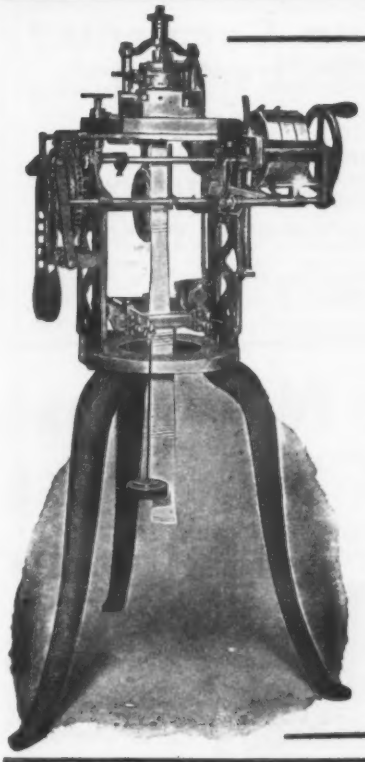
Pawtucket, Rhode Island

Manufacturers of

"INVINCIBLE" and "JENCKES"

Full Automatic Circular

Seamless Knitting Machinery



H. BRINTON COMPANY

213-217 Race Street, Philadelphia, Pa.

BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

NECKTIE MACHINES

for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

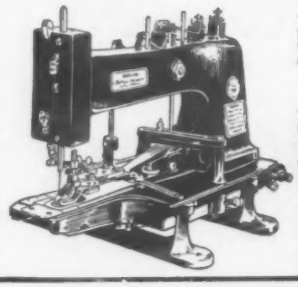
Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
Pineapple Stitch Sweater Machines.
Jersey Sweater Machines.
Plain Binding Machines.
Rotary Jacquard Binding Machines.

FOR INFORMATION, ADDRESS

STAFFORD & HOLT,

LITTLE FALLS, · NEW YORK, U. S. A.

Why Do You Put Buttons on Garments?



"So the garment can be buttoned when on," you would probably reply

Then why sew buttons on in such a way that it is almost impossible to button the garment neatly, especially when starched? Why have the buttons so tight that they will not stand the wear and tear of the laundry? Why sew them without any allowance for thread shrinkage? Why do these things when with the

Elastic Stitch Button Sewing Machine

you can sew buttons neatly and uniformly with only one thread (instead of two), with an allowance for thread shrinkage, and with a raised, hand-sewed effect?

No Threads to trim. Saves 90 per cent of Needle Breakage. **No Bobbins to Wind.** **Will Sew all Buttons with any Thread.**

You can save money and increase the demand for your product by sewing your buttons on with the "Elastic Stitch" Button Sewing Machine. *Send for our "List of Users" booklet.*

Union Button Sewing Co., Dept., Frederick Osann Co.

394 Atlantic Ave., Boston, Mass. **Agents Everywhere** 245 Seventh Ave., New York

HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,

Cor. Elm and Reed Sts., Reading, Pa.

NEW ENGLAND BUTT COMPANY

304 PEARL STREET, PROVIDENCE, R. I.

BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS

SOLID SASH AND CURTAIN CORDS

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Acme Knitting Machine & Needle Company

FRANKLIN, N. H.

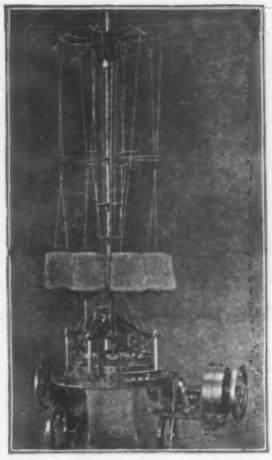
Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers Like our Latch Needles

because we make a superior grade of needles

Philadelphia Office, Bourse Bldg.

CRAWFORD STOP MOTIONS



For all makes and sizes of

Circular Rib Knitting Machines

Twenty Years of Experience and Success

Adapted for HEAVY SWEATER yarns as well as UNDERWEAR work

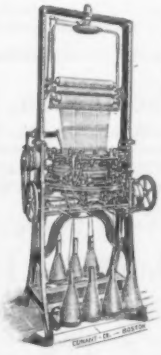
Crawford Manufacturing Co.

NEW BRUNSWICK, N. J.

CHARLES COOPER

BENNINGTON, VERMONT

MANUFACTURER OF



Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder, Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles

Burr Wheels

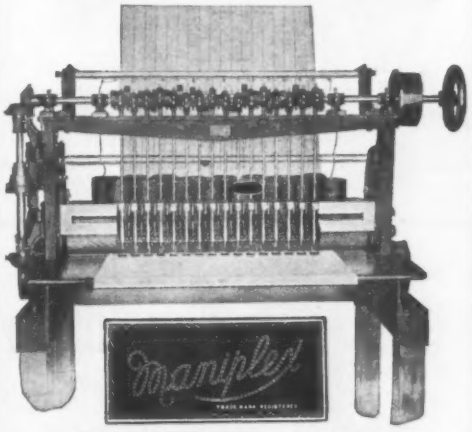
Burr Blades, Sinkers, Jacks, etc.

COLLARETTE ATTACHMENT

American representative:
G. H. ROGERS
838 Lancaster St., Albany N. Y.

European Representative:
FELIX LEDERER
1x/4 Schubertgasse, Nr. 22, Vienna, Austria

"Maniplex" Sewing Machines



For Multiple Stitching

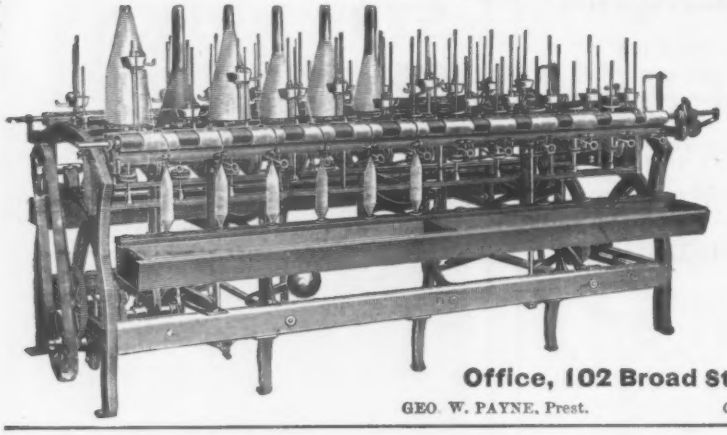
Built for all purposes where a number of rows of stitching are required. ¶ With either form of stitch, single thread chain, double thread chain, or lock stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶ Furnished with any desired number of needles, spacing to suit requirements. ¶ We also build **Paper Slitting Machines** and design special machinery.

L. F. FALES

Walpole, Mass., U S. A.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

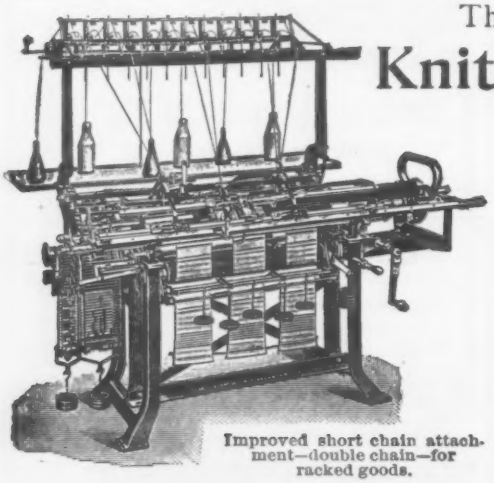
Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides. Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.

(Est. 1865, Inc. 1903.)

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas



Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

281 Ainslie Street **Brooklyn, N. Y.**

New Jersey Wire Stitcher

Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

Send for Catalogue

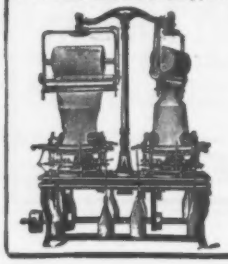
J. L. Shoemaker & Co.
15 S. Sixth Street
PHILADELPHIA

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

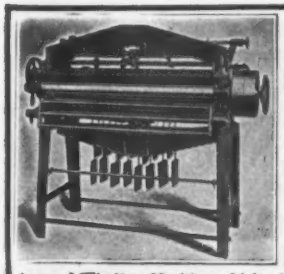
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.



50%

Better than ever from YOUR standpoint

Several New Features

have been added to the "1912" Cloth Cutting, Folding and Winding Machine which *add at least 50% to its value to YOU.* It will cut your cloth—fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine. It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two, and you get an *extra* strip from every bolt of cloth.

It cuts the corners of expense in every way and leads to *more and greater profits.*

The Enormous Savings Will Interest You

Mail a card for complete information and prices. When in need of special machinery write me.

Department A

J. A. FIRSCHING 614 Broad St., Utica, N. Y., U. S. A.

Eureka Fire Hose

Cotton Mills, Woolen Mills, Knitting Mills and Factories need positive protection instantly available. Eureka Hose gives protection.

"Eureka" has the lasting quality and the capacity to resist wear and tear.

Fire Hose for every possible duty.

Eureka Fire Hose Mfg. Co.
NEW YORK

STANDARD "G"

¶ A New Type of Hosiery Machine—being the result of 22 years of actual experience in studying the needs of the trade.

¶ Your investigation desired.

¶ Can be seen running at all times.

Standard Machine Company

OFFICE AND SHOWROOMS

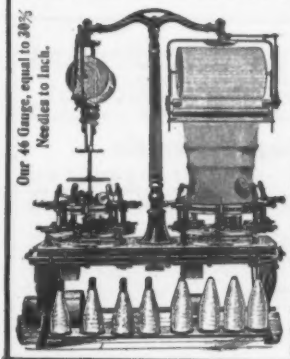
330-340 N. 12th Street
Philadelphia

ROBT. W. GORMLY AND COMPANY, TROY, N. Y.

We are the Oldest Manufacturers

WITH

45 Years Practical Experience



In building Spring Need e Knitting Machines. Have succeeded in knitting the finest and coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge.

The above machine will also produce our new patent cloth made with a staggered needle.

Here's a Quick Drying Ink

Haereo Indelible Ink

that is guaranteed not to wash out of any fabric when applied as per instructions. ¶ Neither sulphur, lime nor peroxide bleach effect it. ¶ We will leave the proof of our claims to the sample which we will send on request.

Jones & Hardy, Inc.
Hudson, N. Y.

Look up our booth at The Hosiery and Underwear Exhibition at Philadelphia May 3rd to 7th inclusive.

CONTINENTAL LATCH NEEDLE CO.
NEW YORK
THE WORKMANSHIP AND QUALITY OF OUR GERMAN NEEDLES ARE UNSURPASSED OUR SCREW RIVET DOES NOT GET ROUGH OR LOOSE
LARGE STOCK OF NEEDLES FOR ALL AMERICAN AND FOREIGN KNITTING MACHINES
N.Y. OFFICE 120 LIBERTY ST.
WORKS, EBINGEN, GERMANY

The CRAWFORD

HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS

SPENCE & RIDEOUT

Successors to
J. J. CRAWFORD & SON
Established 1868 **NASHUA, N.H.**

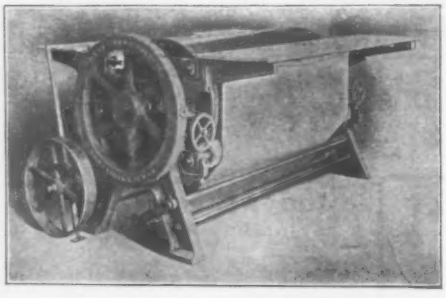
MACHINERY FOR

Making Cones

Cop Tubes and Straight Shells

For textile and manufacturing purposes
Knitting looms for millinery, dress and upholstery trimmings

JOHN EPPLER MACHINE WORKS
629-631 Filbert St., Philadelphia, Pa.



You know that the greatest factor in earning power is a capacity that reduces the cost of production. Therefore we want you to know that

THE J. W. CRAW PRESS

excels all others in capacity.

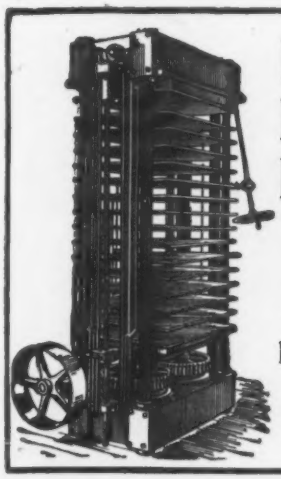
Capacity and Finish

With **two** girl operators its record capacity is pressing **six hundred dozen** garments per day **without breaking a button.** With only **one** operator it is **three hundred dozen** per day.

The appearance of the garment when pressed on it is very attractive; the finish cannot be excelled; **many mills say it cannot be equalled** by any press or method of pressing.

Sizes to meet your requirements. Terms to suit your convenience. Write us for prices and terms.

The J. W. Craw Machinery Co., South Norwalk, Conn.



Reliance Hot Plate Press

For Hosiery and Underwear Trade

For price and particulars address

Reliance Machine Works

Hedge and Plum Sts.
Frankford, Phila., Pa.

Simplex Yarn Tables.

Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

WM. BREEDON'S SON
MANUFACTURERS OF
Spring Knitting Needles
AND BURR BLADES OF ALL KINDS
AMSTERDAM, N. Y.

KEYSTONE LATCH NEEDLE CO.
JOHN C. EGLY, MGR. Manufacturers of
Patent and Regular Latch Needles
Needles for all makes of Knitters and Ribbers
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.
543 W. Lehigh Avenue, Philadelphia, Pa.

Domestic Machinery Works

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Full Fashioned Knitting MACHINES

We are rigged up to do anything from a knocking over bit to a finished Cotton frame. Also repair and change machines from the coarsest to the finest gauge.

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STANDARD LATCH NEEDLES

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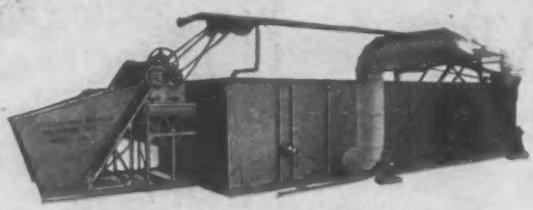

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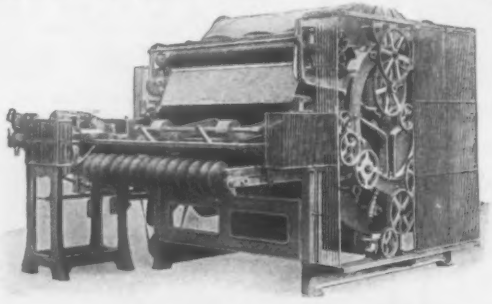

Full Circular Finisher Card with Patent Push Bar Drawing Head

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Let us explain to you its further advantages.

Catalogue D, Mill Machinery
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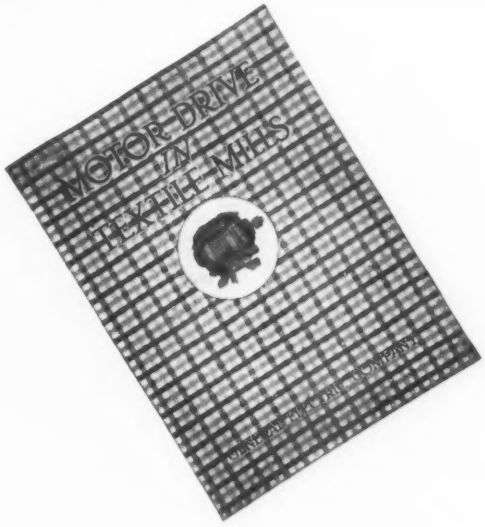

G-E Motors Installed in a Large Majority of All Important 1914 Extensions or New Projects

The December, 1914 issue of the TEXTILE WORLD RECORD gives a list of new mills, mills in process and mills completed during 1914.

A large majority of the new mills have installed G-E equipment.

The G-E Motors now in use in textile mills are numbered by the tens of thousands, and at the present rate of increase their horsepower capacity will soon be numbered by the hundred thousand.

The great popularity of these special textile motors, as shown by the rapid increase in their sales from year to year, enables this company to give the customer all the benefits of quantity buying, material testing, large scale manufacturing made exact by special jigs and templates as well as careful testing by experts.

The design of these motors shows the constant consultation of their designers with the Mill Power salesmen of the General Electric Company—men who are thoroughly familiar with textile mill practice. The operating records of all our special textile mill motors which are open for the inspection of prospective customers have resulted in greatly increased sales this year.

Bulletin No. 48,016, shows G-E motor drives in prominent textile mills throughout this country. Write our nearest office for your copy.

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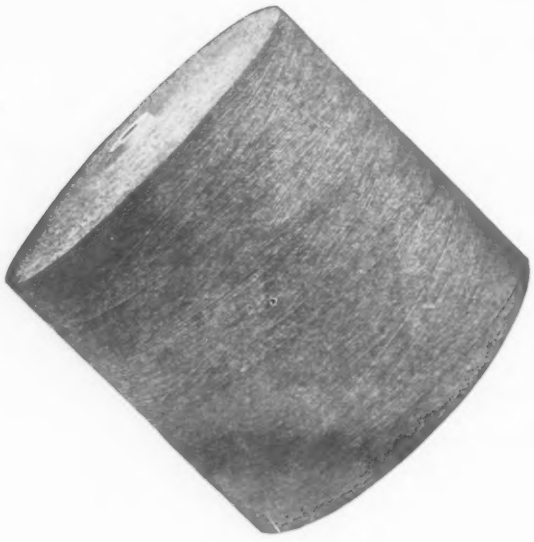

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